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CONTAMINATION ASSESSMENT REPORT ADDENDUM SITE 5 UNDERGROUND STORAGE TANK 116 (UST 116) NAVAL AVIATION DEPOT NAS PENSACOLA FL

8/1/1995

ABB ENVIRONMENTAL SERVICES INC.

CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 5, UST 116
NAVAL AVIATION DEPOT

NAVAL AIR STATION
PENSACOLA, FLORIDA

UNIT IDENTIFICATION CODE: N00204
CONTRACT NO.: N62467-89-D-0317/008

AUGUST 1995

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

CONTAMINATION ASSESSMENT REPORT ADDENDUM

SITE 5, UST 116
NAVAL AVIATION DEPOT

NAVAL AIR STATION
PENSACOLA, FLORIDA

Unit Identification Code: N00204

Contract No. N62467-89-D-0317/008

Prepared by:

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2590 Executive Center Circle, East
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Prepared for:

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

Byas Glover, Code 18410, Engineer-in-Charge

August 1994

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/008 are complete and accurate and comply with all requirements of this contract.

DATE: August 11, 1995

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Diblin, P.G.
Task Order Manager

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

(DFAR 252.227-7036)

FOREWORD

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

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

The UST program includes the following activities:

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

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) manages the UST program, and the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP; formerly Florida Department of Environmental Regulation) oversee the Navy UST program at Naval Aviation Depot (NADEP) Pensacola.

Questions regarding the UST program at NADEP Pensacola should be addressed to Mr. Byas Glover, SOUTHNAVFACENGCOM, Code 18410, at (803) 743-0651.

ACKNOWLEDGMENTS

In preparing this report, the Underground Storage Tank section (UST) 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 at Naval Aviation Depot, Naval Air Station, Pensacola, Florida, and Southern Division, Naval Facilities Engineering Command.

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AVGAS	aviation gasoline
BEI	Bechtel Environmental, Inc.
bdl	below detection limits
bls	below land surface
BRAC	Base Realignment and Closure
CA	contamination assessment
CAR	Contamination Assessment Report
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
DOD	Department of Defense
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GTES	GT Environmental Services
NADEP	Naval Aviation Depot
NAS	Naval Air Station
ND	not detected
NFAP	No Further Action Plan
NS	not sampled
NTTC	Naval Technical Training Center
PAH	polynuclear aromatic hydrocarbons
ppb	parts per billion
ppm	parts per million
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
TIC	tentatively identified compound
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatics
VOH	volatile organic halocarbons
yd^3	cubic yard

1.0 SITE BACKGROUND AND DESCRIPTION

Site 5 is located on the west-central edge of Chevalier Field, Naval Aviation Depot (NADEP), Pensacola (Figure 1-1). It is the former location of a 500-gallon underground storage tank (UST) associated with the aviation gasoline (AVGAS) pipeline (Figure 1-2). The tank, designated UST 116, was situated approximately 40 feet west of Industrial Road and approximately 370 feet south of Taylor Road. The tank was constructed of unprotected steel and installed next to a steel containment area referred to by site personnel as an "oil pit." At the time of removal, the "oil pit" contained a variety of piping, valves, and a rubber hose on a steel reel. The purpose of the pits is uncertain, although the suspected usage was to dispense lube oil and air during aircraft maintenance.

UST 116 was removed in September 1994 by Phoenix Construction Company and their subcontractor, GT Environmental Services, Inc. (GTES). During the tank removal operations a visual observation of soil contamination was reported by GTES personnel. No confirmatory samples were collected by GTES. Subsequent to the UST removal, all excavated soil was returned to the excavation. A copy of the GTES Closure Assessment report for the site is attached in Appendix A, GTES Correspondence.

The UST site was subsequently transferred to ABB Environmental Services, Inc. (ABB-ES) for closure. The closure report for UST 116 is presented in Appendix A of the AVGAS Pipeline Area Contamination Assessment Report (CAR) submitted by ABB-ES in August 1995. Because visual observation of site soil contamination had been reported, a Discharge Reporting Form was filed with the closure report. The Discharge Reporting Form is also included in Appendix A of the August 1995 AVGAS Pipeline CAR.

In January 1995, the demolition of Chevalier Field commenced. The airfield and many of its associated facilities are being demolished as part of the Base Realignment and Closure (BRAC) program. A Naval Technical Training Center (NTTC) is being constructed on the former airfield. As a result of this BRAC construction, Site 5 underwent drastic changes at the end of this investigation. The maps included in this report present the Site 5 area as it was prior to demolition and construction.

The following report summarizes the data gathered during Site 5 UST closure and preliminary contamination assessment (CA). General information such as regional and local physiography, regional hydrology, investigative methodologies, and procedures are included in the August 1995 AVGAS Pipeline Area CAR.

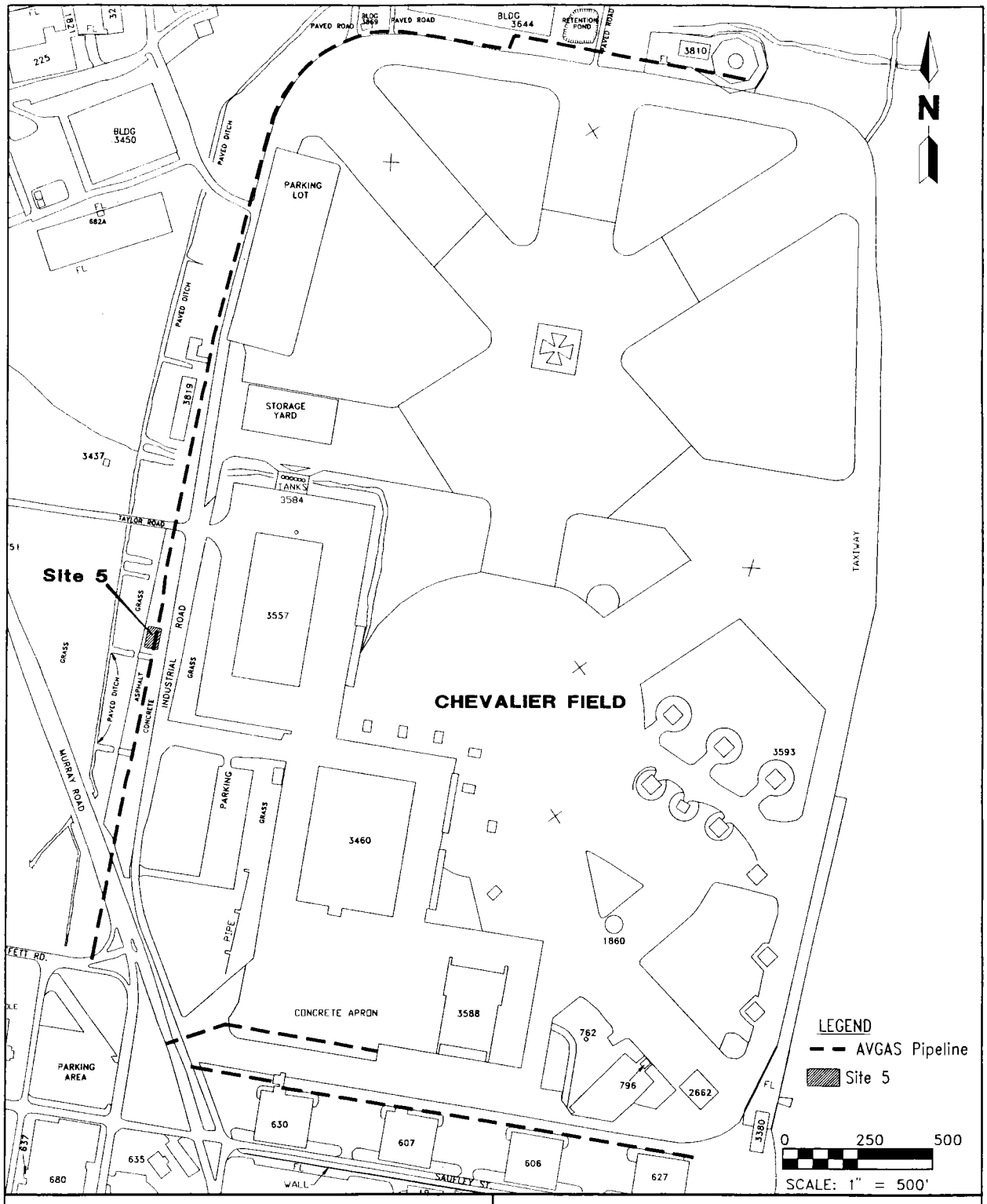

FIGURE 1-1
SITE LOCATION MAP

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CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 5, UST 116

NADEP PENSACOLA
PENSACOLA, FLORIDA

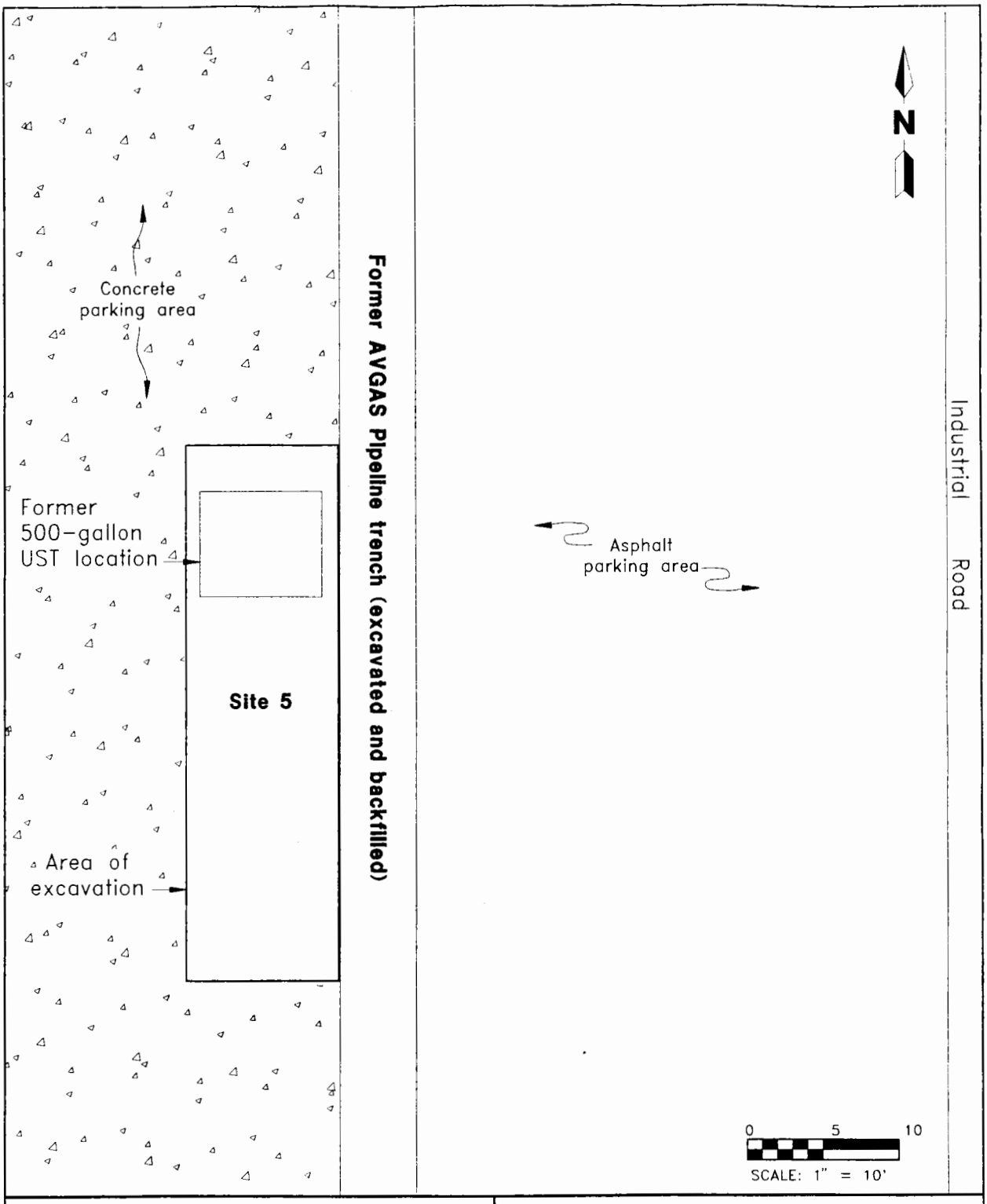

FIGURE 1-2
SITE PLAN

CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 5, UST 116

NADEP PENSACOLA
PENSACOLA, FLORIDA

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2.0 CONTAMINATION ASSESSMENT RESULTS

2.1 SOIL ASSESSMENT RESULTS. All laboratory soil samples were collected in accordance with ABB-ES' approved Comprehensive Quality Assurance Plan (CompQAP) using a hand-operated auger. Samples were placed in the appropriate containers, labeled, packed in ice, and shipped by overnight carrier to Quanterra Environmental Services in Tampa, Florida, for analysis.

2.1.1 Initial Soil Assessment On October 11, 1994, ABB-ES personnel advanced five soil borings (05B001 through 05B005) around the perimeter of the UST excavation area with a stainless steel hand-operated auger. Two soil borings from Site 23, Site 23-SB11 and Site 23-SB12, were also used as data points for this investigation. The purpose of these borings was to gather lithologic information and visually inspect the soil around the excavation for contamination. Visual inspection revealed soil staining on the north edge of the excavation. Table 2-1 summarizes the data collected from these borings. Figure 2-1 presents the lithologic soil boring locations. Soil boring data are presented in this report in Appendix B, Lithologic Logs.

On November 3, 1994, a composite soil sample, 05B00601, was collected from the soil returned to the Site 5 excavation area during tank removal operations. This sample was composited from soil collected at each corner and the center of the UST excavation area from 0.5 to 1 foot below land surface (bls). The sample was analyzed for the clean soil criteria described in 62-775.400 Florida Administrative Code (FAC). Figure 2-1 presents the composite soil sampling locations and the analytical results of 05B00601. Laboratory analytical sheets for sample 05B00601 are attached in this report in Appendix C, Laboratory Analytical Data for Soil.

Volatile organic aromatic (VOA) and polynuclear aromatic hydrocarbon (PAH) concentrations were below method detection limits for soil sample 05B00601. A total recoverable petroleum hydrocarbons (TRPH) concentration of 299 parts per million (ppm) was detected in the soil sample. Because PAH and VOA concentrations were below detection limits, a TRPH clean soil maximum concentration of 50 ppm was applied according to Chapter 62-775.400, FAC. Chromium, arsenic, and lead concentrations were below their respective State-mandated maximum concentrations.

On January 31, 1995, excessively contaminated soil from the former location of UST 116 was removed by Bechtel Environmental, Inc. (BEI). The excavation area is shown on Figure 2-1. Approximately 26 cubic yards (yd^3) of soil were removed from an area 35 feet by 10 feet. Excavation continued until the water table was reached at 2 feet bls. The soil removed from the site consisted of fine-grained, moderate to well sorted sand, ranging in color from light gray to dark yellowish orange. ABB-ES personnel present during the excavation reported no stained soil or other visual evidence of contamination on the walls of the excavation. The Site 5 soil was stockpiled with soil excavated from other lube-oil USTs during BEI excavation activities at Chevalier Field. In May 1995, the stockpiled soil was removed from the base and taken to an incineration facility for thermal treatment. The soil transportation manifests and receipts were included in the appendices of the AVGAS Pipeline Area CAR submitted to the Florida Department of Environmental Protection (FDEP) in August 1995.

Table 2-1
Summary of Lithologic Soil Boring Data, September and October 1994

Contamination Assessment Report Addendum
Site 5, Underground Storage Tank 116
Naval Aviation Depot
Pensacola, Florida

Soil Boring Designation	Sample Depth (feet bls)	Physical Observations
05B001	0.4 to 1.5	Stained soil, no petroleum odor
05B002	0.4 to 2.0	No staining, no petroleum odor
05B003	0.4 to 1.5	No staining, no petroleum odor
05B004	0.4 to 1.5	No staining, no petroleum odor
05B005	0.5 to 1.5	Saturated to surface, slight sheen visible on water
Site23-SB11	0.5 to 1.5	No staining, no petroleum odor
Site23-SB12	0.4 to 1.0	No staining, no petroleum odor

Note: bls = below land surface .

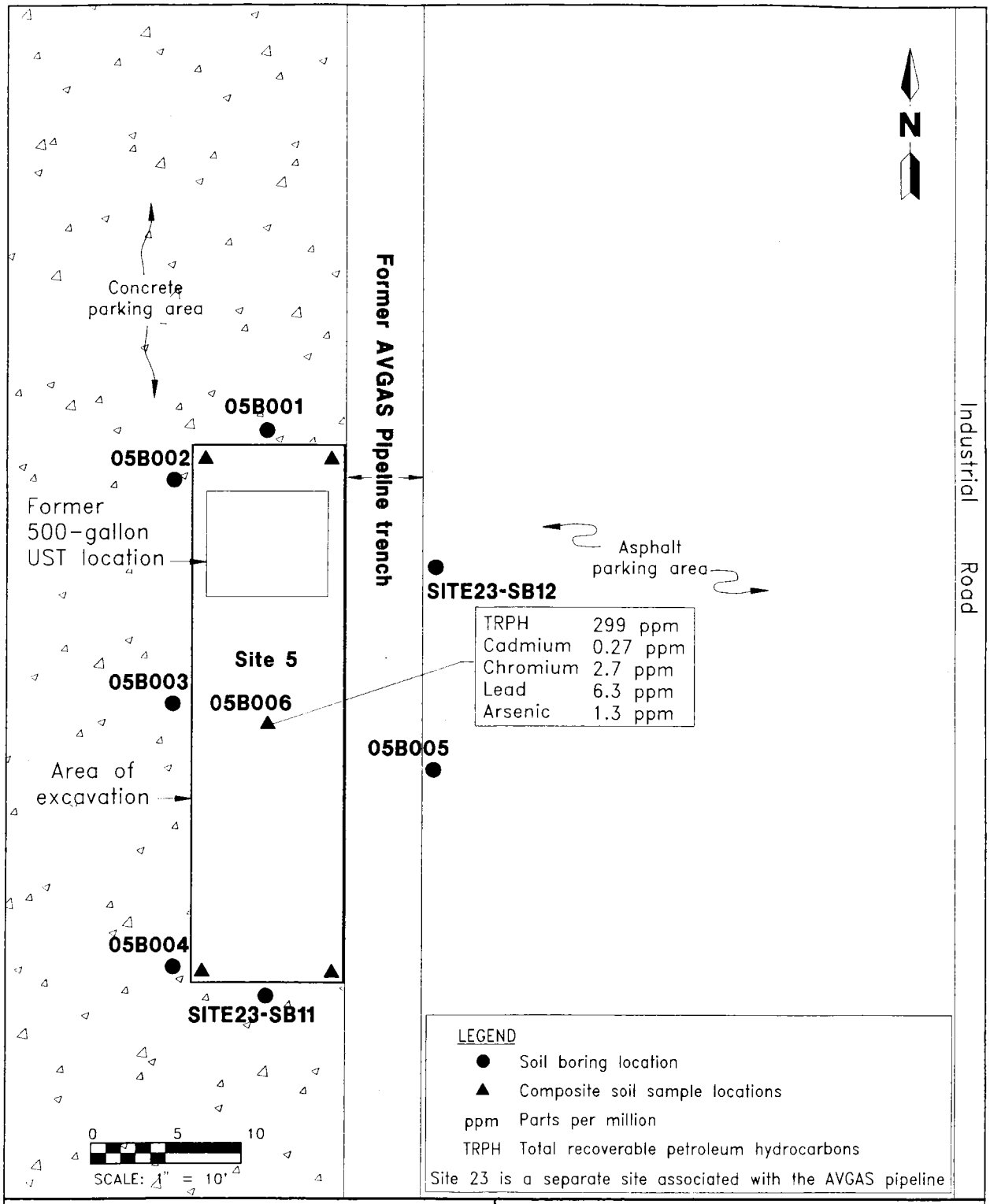

FIGURE 2-1
LITHOLOGIC SOIL BORING LOCATIONS AND ANALYTICAL RESULTS, OCTOBER 1994

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CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 5, UST 116

NADEP PENSACOLA
PENSACOLA, FLORIDA

2.1.2 Confirmatory Soil Assessment In April 1995, four confirmatory soil samples, 05B00702 through 05B01002, were collected from the north, west, south, and east sides of the excavation area, respectively. These soil samples were collected from 0.5 foot bls. All four samples were analyzed for TRPH, arsenic, cadmium, chromium, and lead, according to Chapter 62-770.600 FAC. Table 2-2 summarizes the confirmatory sampling results. Figure 2-2 presents confirmatory sample locations and laboratory analytical results. Laboratory analytical sheets for samples 05B00702 through 05B01002 are presented in Appendix C of this report.

No parameters detected in any of the four samples exceeded the Florida clean soil maximum concentrations.

2.2 GROUNDWATER ASSESSMENT RESULTS. In January 1995, ABB-ES installed one temporary shallow monitoring well in the source area of Site 5. The temporary monitoring well, 05Z001, was manually installed to a depth of 3.5 feet bls. Figure 2-3 presents the location and sampling results for 05Z001. On February 2, 1995, 05Z061 was purged, sampled,and removed.

The groundwater sample, 05Z00101, was analyzed for the Used Oil analytical group parameters in accordance with Chapter 62-770.600 FAC. No volatile or semivolatile contaminants were detected. A TRPH concentration of 1.3 ppm was detected. The State target level for TRPH is 5 ppm. A lead concentration of 9.3 parts per billion (ppb) was detected. The State target level for lead is 50 ppb. Two tentatively identified compounds (TICs) were detected: maleic hydrazide at 5 ppb and 2-amino-cyclopetanecarboxylic acid at 90 ppb. There are no regulatory target levels for these TICs. Laboratory data sheets for groundwater sample 05200101 are presented in Appendix D of this report.

Table 2-2
Summary of Soil Sample Analytical Results
October 1994 through April 1995

Contamination Assessment Report Addendum
Site 5, Underground Storage Tank 116
Naval Aviation Depot
Pensacola, Florida

Contaminant	Soil Sample Designation					Clean Soil[1] Maximum Concentration
	05B00601	05B00702[2]	05B00802	05B00902	05B01002	
Volatile organic aromatics (VOA). Reported in parts per billion (ppb).						
Total VOA	BDL	NS	NS	NS	NS	100
Polynuclear aromatic hydrocarbons (PAH). Reported in ppb.						
Total PAH	BDL	NS	NS	NS	NS	1000
Total recoverable petroleum hydrocarbons (TRPH). Reported in parts per million (ppm).						
TRPH	299	5.5	41.7	<5.8	14.6	50[3]
Total metals. Reported in milligrams per kilogram (mg/kg).						
Cadmium	0.27 J	0.67	0.54	<0.58	<0.60	37
Chromium	2.7 J	<2.7	<2.7	<2.9	<3.0	50
Arsenic	1.3	0.44	0.77	<0.29	<0.30	10
Lead	6.3	2.7	9.8	<2.9	<3.0	108

[1]Chapter 62-775.400 Florida Administrative Code.
[2]Concentrations presented in this column are from sample 05B00702 and its duplicate 05B00702D. The highest concentration detected is reported.
[3]Provided total polynuclear aromatic hydrocarbons (PAH) does not exceed 100 parts per billion (ppb) and total volatile organic halocarbons (VOH) do not exceed 50 ppb. In all other cases the total recoverable petroleum hydrocarbons (TRPH) maximum concentration is 10 parts per million (ppm) (Chapter 62-775.400).

Notes: Total VOA = the sum concentration of benzene, toluene, ethylbenzene, and xylenes.
Total PAH = the sum concentration of PAH compounds detected by USEPA Method 8270A.
NS = not sampled.
BDL = below detection limits.
USEPA = United States Environmental Protection Agency

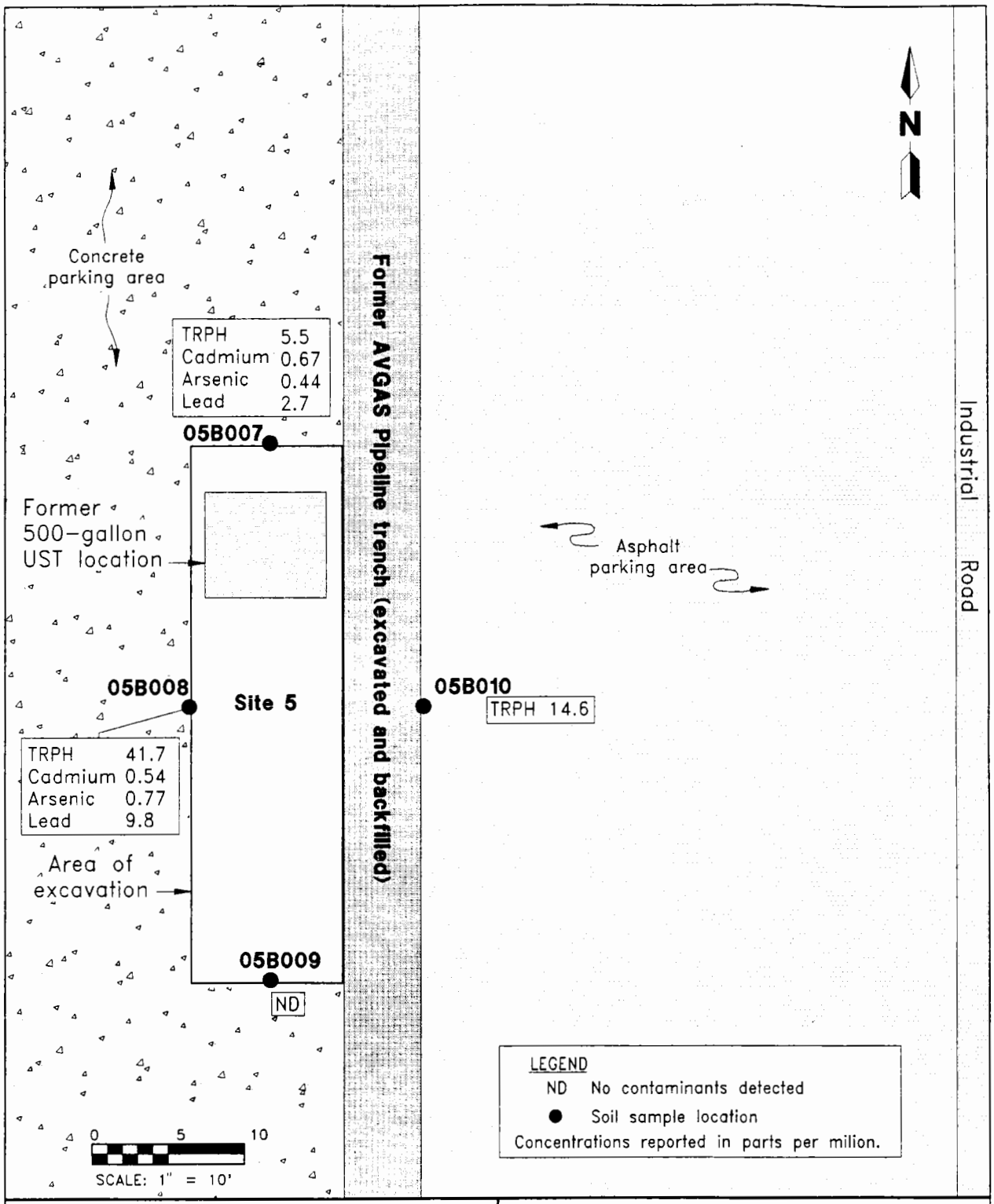

FIGURE 2-2
CONFIRMATORY SOIL SAMPLING LOCATIONS AND ANALYTICAL RESULTS, APRIL 1995

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CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 5, UST 116

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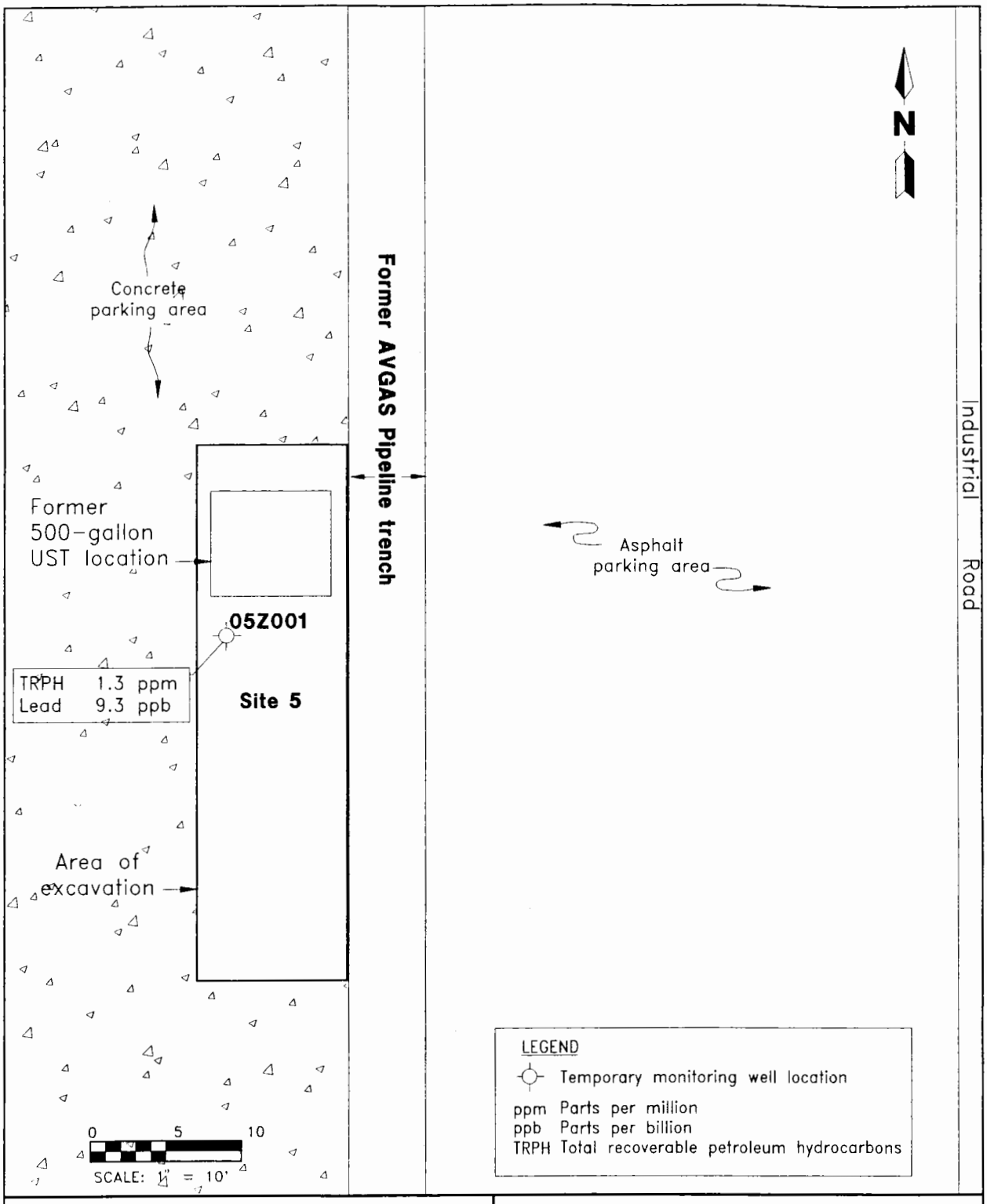

FIGURE 2-3
MONITORING WELL LOCATIONS AND ANALYTICAL RESULTS,

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CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 5, UST 116

NADEP PENSACOLA
PENSACOLA, FLORIDA

3.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

3.1 SUMMARY. Based on the findings of the CA field investigations and laboratory analytical results, the following is a summary of existing conditions at the site.

- Site soil consists of fine-grained, moderate to well sorted sand. The color of the soil ranges from light gray to dark yellowish orange.
- The source of contamination, the UST, has been removed.
- Excessively contaminated soil from the tank excavation area was removed. No visual evidence of soil contamination was observed and laboratory analytical soil sampling results did not exceed State clean soil maximum concentrations.
- The analytical results of the source area groundwater sample indicate that low concentrations of TRPH, lead, and two TICs are present in the groundwater. No contaminants detected exceeded any State target level.

3.2 CONCLUSIONS. Based on the findings of the CA and site conditions, the following can be concluded.

- The soil remaining at Site 5 meets FDEP requirements for clean soil.
- The groundwater at Site 5 has not been impacted by the soil contamination detected during this investigation.

3.3 RECOMMENDATIONS. Based on the findings, conclusions, and interpretations of the CA, ABB-ES recommends a *No Further Action Proposal* (NFAP) for Site 3.

4.0 PROFESSIONAL REVIEW CERTIFICATION

This CAR addendum was prepared under the supervision of a professional geologist registered in the State of Florida using sound hydrogeologic principles and professional judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report or referenced in public literature. Recommendations are based upon interpretations of the applicable regulatory requirements, guidelines, and relevant issues discussed with regulatory personnel during the site investigation. If conditions that differ from those described are determined to exist, the undersigned geologist should be notified to evaluate the effects of any additional information on this assessment or the recommendations made in this report. This CAR addendum was developed for Site 5-UST 116 at NADEP, NAS Pensacola, Florida, and should not be construed to apply to any other site.

Michael J. Williams
Professional Geologist
P.G. No. 344

8/25/95
Date

REFERENCES

Florida Department of Environmental Regulation, May 1994, Guidelines for Assessment and Remediation of Petroleum Contaminated Soil, Division of Waste Management.

Florida Department of Transportation, 1982, Florida official transportation map.

APPENDIX A

GTES CORRESPONDENCE

GT Environmental Services, Inc.

One Purlieu Place, Suite 205 • Winter Park, FL 32792 • 407/671-0125 • Fax: 407/671-2705

NAS Pensacola / Chevalier Field
Closure Assessment / October 17, 1994
GT Environmental Services, Inc

Tanks 130, 138, 140, 143 had no visual contamination. Analytical was run for lead and TRPH. Contamination was detected on all the above tanks .

Tanks Removed		Contaminated		Method of Detection
#104		Soil/Groundwater		Visual
#107		Soil/Groundwater		Visual
#110		Soil		Visual
#116		Soil		Visual
#119		Soil/Groundwater		Visual
#122		Soil		Visual
#130		Soil	TPH 57 PPM	Analytical
#134	Galv.Tank	Soil		Visual
#136				Visual
#138		Soil	TPH 540 PPM	Analytical
#140			TPH 650 PPM; Lead 10PPM	Analytical
#143		Soil	TPH 49 PPM	Analytical

Note: Soil Samples were taken at points where visual contamination appeared. (Where no visual contamination appeared samples were taken from the ends and middle of soil from underground tanks)

Note: GT Environmental Services, Inc. used an HNU P.I.D. on all tank soil. Due to the heavy oil, the P.I.D. did not pick up any volatiles. We referred to the visual detection as required by the Florida Guidelines for Contamination Assessment for Oil Tanks.

APPENDIX B

LITHOLOGIC LOGS

TITLE: NADEP PENSACOLA	**LOG of WELL:** NA	**BORING NO.** 05B001
CLIENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 07527.54
CONTRACTOR: Southern Waste Services	**DATE STARTED:** 10/11/94	**COMPLTD:** 10/11/94
METHOD: Hand Auger	**CASE SIZE:** NA / **SCREEN INT.:** NA	**PROTECTION LEVEL:** D
TOC ELEV.: NA FT.	**MONITOR INST.:** OVA / **TOT DPTH:** 1.5FT.	**DPTH TO ▽** 1.5 FT.
LOGGED BY: P. Wagner and J. Ullo	**WELL DEVELOPMENT DATE:** NA	**SITE:** Site 5-UST 118

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
							SP		
					SAND: fine-grained, moderately well sort, olive gray, damp to wet.				
1									
					SAND: fine- to medium-grained, moderately well sorted, olive gray with brown streaks, possible staining, wet.				▽
2									
3									
4									

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TITLE: NADEP PENSACOLA	**LOG of WELL:** NA	**BORING NO.** 05B002
CLIENT: SOUTHDIVNAVFACENGCOM		**PROJECT NO:** 07527.54
CONTRACTOR: Southern Waste Services	**DATE STARTED:** 10/11/94	**COMPLTD:** 10/11/94
METHOD: Hand Auger	**CASE SIZE:** NA / **SCREEN INT.:** NA	**PROTECTION LEVEL:** D
TOC ELEV.: NA FT.	**MONITOR INST.:** OVA / **TOT DPTH:** 2.0FT.	**DPTH TO ▽** 1.5 FT.
LOGGED BY: P. Wagner and J. Ullo	**WELL DEVELOPMENT DATE:** NA	**SITE:** Site 5-UST 118

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
					SAND: very fine- to fine-grained, moderately well sorted, pale brown, damp.		SP		
1									
					SAND: fine-grained, well sorted, light brown, wet.				▽
2									
3									
4									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NADEP PENSACOLA	**LOG of WELL:** NA		**BORING NO.** 05B003
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 07527.54
CONTRACTOR: Southern Waste Services		**DATE STARTED:** 10/11/94	**COMPLTD:** 10/11/94
METHOD: Hand Auger	**CASE SIZE:** NA	**SCREEN INT.:** NA	**PROTECTION LEVEL:** D
TOC ELEV.: NA FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 1.5FT.	**DPTH TO ▽** 1.5 FT.
LOGGED BY: P. Wagner and J. Ullo	**WELL DEVELOPMENT DATE:** NA		**SITE:** Site 5-UST 118

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
					SAND: fine-grained, well sorted, moderate reddish orange, wet.		SP		
1									
2									
3									
4									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NADEP PENSACOLA	**LOG of WELL:** NA		**BORING NO.** 05B004
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 07527.54
CONTRACTOR: Southern Waste Services		**DATE STARTED:** 10/11/94	**COMPLTD:** 10/11/94
METHOD: Hand Auger	**CASE SIZE:** NA	**SCREEN INT.:** NA	**PROTECTION LEVEL:** D
TOC ELEV.: NA FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 1.5FT.	**DPTH TO ▽** 1.0 FT.
LOGGED BY: P. Wagner and J. Ullo	**WELL DEVELOPMENT DATE:** NA		**SITE:** Site 5-UST 118

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
					SAND: fine-grained with trace small pebbles, moderately well sorted, dark yellowish orange to pale yellowish brown, wet.		SW		
1					SAND: fine-grained, well sorted, grayish orange to dark yellowish orange, wet.		SP		▽
2									
3									
4									

TITLE: NADEP PENSACOLA	**LOG of WELL:** NA		**BORING NO.** 05B005
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 07527.54
CONTRACTOR: Southern Waste Services		**DATE STARTED:** 10/11/94	**COMPLTD:** 10/11/94
METHOD: Hand Auger	**CASE SIZE:** NA	**SCREEN INT.:** NA	**PROTECTION LEVEL:** D
TOC ELEV.: NA FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 1.5FT.	**DPTH TO ▽** 0.5 FT.
LOGGED BY: P. Wagner and J. Ullo	**WELL DEVELOPMENT DATE:** NA		**SITE:** Site 5-UST 118

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Asphalt.				
							SP		▽
					SAND: fine-grained, well sorted, mlight gray, saturated.				
1									
2									
3									
4									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NADEP PENSACOLA	**LOG of WELL:** NA		**BORING NO.** SITE23-SB11
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 07527.34
CONTRACTOR: Southern Waste Services		**DATE STARTED:** 9/19/94	**COMPLTD:** 9/19/94
METHOD: Hand Auger	**CASE SIZE:** NA	**SCREEN INT.:** NA	**PROTECTION LEVEL:** D
TOC ELEV.: NA FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 1.5FT.	**DPTH TO ▽** ~1.5 FT.
LOGGED BY: P. Wagner and J. Ullo	**WELL DEVELOPMENT DATE:** NA		**SITE:** Site 23 IR

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Concrete.				
							SP		
1					SAND: fine-grained, well sorted, dark yellowish orange.				
2									
3									
4									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NADEP PENSACOLA	**LOG of WELL:** NA		**BORING NO.** SITE23-SB12
CLIENT: SOUTHDIVNAVFACENGCOM			**PROJECT NO:** 07527.34
CONTRACTOR: Southern Waste Services		**DATE STARTED:** 9/21/94	**COMPLTD:** 9/21/94
METHOD: Hand Auger	**CASE SIZE:** NA	**SCREEN INT.:** NA	**PROTECTION LEVEL:** D
TOC ELEV.: NA FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 1.0FT.	**DPTH TO ▽** ~1.0 FT.
LOGGED BY: P. Wagner and J. Ullo	**WELL DEVELOPMENT DATE:** NA		**SITE:** Site 23 IR

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Asphalt.				
1					SAND & FILL: fine-grained to small pebbles, poor sort, moderate reddish brown to black, damp to wet.		FILL		
2									
3									
4									

ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

LABORATORY ANALYTICAL DATA FOR SOIL

Quanterra Environmental Services

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

813 621-0784 Telephone
813 623-6021 Fax

ANALYTICAL REPORT

PROJECT NO. 752734

FORMER UST LOCATIONS

PAMELA WAGNER

ABB ENVIRONMENTAL SERVICES

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

Joanne Anderson
Project Manager

November 25, 1994

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B4K040018

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
05B00601				
Petroleum Hydrocarbons Total Recoverable	299	5.5	mg/kg	MCAWW 418.1
Solids, Total (TS)	90.5	1.0	%	MCAWW 160.3
Arsenic	1.3	0.28	mg/kg	SW846 7060
Cadmium	0.27 J	0.55	mg/kg	SW846 6010A
Chromium	2.7 J	2.8	mg/kg	SW846 6010A
Lead	6.3	0.28	mg/kg	SW846 7421
06B00701				
Petroleum Hydrocarbons Total Recoverable	106	5.4	mg/kg	MCAWW 418.1
Solids, Total (TS)	93.1	1.0	%	MCAWW 160.3
Arsenic	0.53	0.27	mg/kg	SW846 7060
Chromium	1.9 J	2.7	mg/kg	SW846 6010A
Lead	4.6	0.27	mg/kg	SW846 7421
07B00601				
Petroleum Hydrocarbons Total Recoverable	31.4	6.0	mg/kg	MCAWW 418.1
Solids, Total (TS)	83.0	1.0	%	MCAWW 160.3
Arsenic	2.0	0.30	mg/kg	SW846 7060
Cadmium	2.1	0.60	mg/kg	SW846 6010A
Chromium	12.3	3.0	mg/kg	SW846 6010A
Lead	681	30.1	mg/kg	SW846 7421
PEN-3557-SB42				
Petroleum Hydrocarbons Total Recoverable	63.4	6.0	mg/kg	MCAWW 418.1
Solids, Total (TS)	83.3	1.0	%	MCAWW 160.3
Chromium	0.42 J	3.0	mg/kg	SW846 6010A
Lead	1.8	0.30	mg/kg	SW846 7421
09B00901				
Petroleum Hydrocarbons Total Recoverable	17.2	5.3	mg/kg	MCAWW 418.1
Solids, Total (TS)	94.5	1.0	%	MCAWW 160.3
Arsenic	1.1	0.26	mg/kg	SW846 7060
Cadmium	0.46 J	0.53	mg/kg	SW846 6010A

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B4K040018

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
09B00901				
Chromium	3.6	2.6	mg/kg	SW846 6010A
Lead	20.5	0.53	mg/kg	SW846 7421
13B00101				
Petroleum Hydrocarbons Total Recoverable	11.9	5.3	mg/kg	MCAWW 418.1
Solids, Total (TS)	94.5	1.0	%	MCAWW 160.3
Arsenic	0.33	0.26	mg/kg	SW846 7060
Chromium	2.5 J	2.6	mg/kg	SW846 6010A
Lead	9.1	0.53	mg/kg	SW846 7421
09B00901D				
Petroleum Hydrocarbons Total Recoverable	97.2	5.3	mg/kg	MCAWW 418.1
Solids, Total (TS)	94.3	1.0	%	MCAWW 160.3
Arsenic	1.5	0.27	mg/kg	SW846 7060
Cadmium	0.52 J	0.53	mg/kg	SW846 6010A
Chromium	4.4	2.7	mg/kg	SW846 6010A
Lead	22.0	1.1	mg/kg	SW846 7421
EQUIPMENT BLANK				
Methylene chloride	1.0 B	1.0	ug/L	SW846 8240A
Arsenic	2.4 J	5.0	ug/L	SW846 7060
Lead	1.9 J	5.0	ug/L	SW846 7421

Quanterra
Environmental Services

ANALYTICAL METHODS SUMMARY

Parameters	Methods
Polychlorinated Biphenyls	SW846 8080
Volatile Organics	SW846 8240A
Volatile Organics	SW846 8240A
Semivolatile Organics	SW846 8270A
Petroleum Hydrocarbons Total Recoverable	MCAWW 418.1
Petroleum Hydrocarbons Total Recoverable	MCAWW 418.1 MODIFIED
Cadmium	SW846 6010A
Chromium	SW846 6010A
Cadmium	SW846 6010A
Chromium	SW846 6010A
Arsenic	SW846 7060
Lead	SW846 7421
Solids, Total (TS)	MCAWW 160.3 MODIFIED

References:

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

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

Quanterra
Environmental Services

SAMPLE SUMMARY

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

WO #	LABORATORY ID	SAMPLE IDENTIFICATION
A15LP	B4K040018-001	05BOO601
A15LQ	B4K040018-002	06BOO701
A15LR	B4K040018-003	07BOO601
A15LT	B4K040018-004	PEN-3557-SB42
A15LU	B4K040018-005	09BOO901
A15LV	B4K040018-006	13BOO101
A15LW	B4K040018-007	09BOO901D
A15M2	B4K040018-008	EQUIPMENT BLANK
A15M7	B4K040018-009	TRIP BLANK

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP108
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Volatiles

1 OF 2

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acrolein	ND	55	SW846 8240A	11/17/94	4322125
Acrylonitrile	ND	55	SW846 8240A	11/17/94	4322125
Benzene	ND	5.5	SW846 8240A	11/17/94	4322125
Bromodichloromethane	ND	5.5	SW846 8240A	11/17/94	4322125
Bromoform	ND	5.5	SW846 8240A	11/17/94	4322125
Bromomethane	ND	5.5	SW846 8240A	11/17/94	4322125
Carbon tetrachloride	ND	5.5	SW846 8240A	11/17/94	4322125
Chlorobenzene	ND	5.5	SW846 8240A	11/17/94	4322125
Dibromochloromethane	ND	5.5	SW846 8240A	11/17/94	4322125
Chloroethane	ND	5.5	SW846 8240A	11/17/94	4322125
2-Chloroethyl vinyl ether	ND	5.5	SW846 8240A	11/17/94	4322125
Chloroform	ND	5.5	SW846 8240A	11/17/94	4322125
Chloromethane	ND	5.5	SW846 8240A	11/17/94	43 25
1,2-Dichlorobenzene	ND	5.5	SW846 8240A	11/17/94	43 25
1,3-Dichlorobenzene	ND	5.5	SW846 8240A	11/17/94	4322125
1,4-Dichlorobenzene	ND	5.5	SW846 8240A	11/17/94	4322125
1,1-Dichloroethane	ND	5.5	SW846 8240A	11/17/94	4322125
1,2-Dichloroethane	ND	5.5	SW846 8240A	11/17/94	4322125
1,1-Dichloroethene	ND	5.5	SW846 8240A	11/17/94	4322125
cis-1,2-Dichloroethene	ND	5.5	SW846 8240A	11/17/94	4322125
trans-1,2-Dichloroethene	ND	5.5	SW846 8240A	11/17/94	4322125
1,2-Dichloropropane	ND	5.5	SW846 8240A	11/17/94	4322125
cis-1,3-Dichloropropene	ND	5.5	SW846 8240A	11/17/94	4322125

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	117	(85 - 138)
Toluene-d8	101	(89 - 128)
Bromofluorobenzene	102	(83 - 128)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP108
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
trans-1,3-Dichloropropene	ND	5.5	SW846 8240A	11/17/94	4322125
Ethylbenzene	ND	5.5	SW846 8240A	11/17/94	4322125
Trichlorofluoromethane	ND	5.5	SW846 8240A	11/17/94	4322125
Methylene chloride	ND	5.5	SW846 8240A	11/17/94	4322125
1,1,2,2-Tetrachloroethane	ND	5.5	SW846 8240A	11/17/94	4322125
Tetrachloroethene	ND	5.5	SW846 8240A	11/17/94	4322125
Toluene	ND	5.5	SW846 8240A	11/17/94	4322125
1,1,1-Trichloroethane	ND	5.5	SW846 8240A	11/17/94	4322125
1,1,2-Trichloroethane	ND	5.5	SW846 8240A	11/17/94	4322125
Trichloroethene	ND	5.5	SW846 8240A	11/17/94	4322125
Vinyl chloride	ND	5.5	SW846 8240A	11/17/94	4322125
Xylenes, Total	ND	5.5	SW846 8240A	11/17/94	4322125

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	117	(85 - 138)
Toluene-d8	101	(89 - 128)
Bromofluorobenzene	102	(83 - 128)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP106
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC Semi-Volatiles

PARAMETER	RESULT (mg/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
PCB-1016	ND	1.1	SW846 8080	11/07-11/09/94	4311092
PCB-1221	ND	1.1	SW846 8080	11/07-11/09/94	4311092
PCB-1232	ND	1.1	SW846 8080	11/07-11/09/94	4311092
PCB-1242	ND	1.1	SW846 8080	11/07-11/09/94	4311092
PCB-1248	ND	1.1	SW846 8080	11/07-11/09/94	4311092
PCB-1254	ND	1.1	SW846 8080	11/07-11/09/94	4311092
PCB-1260	ND	1.1	SW846 8080	11/07-11/09/94	4311092

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Tetrachloro-m-xylene	103	(32 - 154)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP107
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acenaphthene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Acenaphthylene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Anthracene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Benzidine	ND	1,900	SW846 8270A	11/11-11/15/94	4315088
Benzo(a)anthracene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Benzo(b)fluoranthene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Benzo(k)fluoranthene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Benzo(ghi)perylene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Benzo(a)pyrene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Bis(2-chloroethoxy)methane	ND	360	SW846 8270A	11/11-11/15/94	4315088
Bis(2-chloroethyl)ether	ND	360	SW846 8270A	11/11-11/15/94	4315088
Bis(2-chloroisopropyl)ether	ND	360	SW846 8270A	11/11-11/15/94	4315088
Bis(2-ethylhexyl)phthalate	ND	360	SW846 8270A	11/11-11/15/94	43[illegible]8
4-Bromophenyl phenyl ether	ND	360	SW846 8270A	11/11-11/15/94	43[illegible]8
Butyl benzyl phthalate	ND	360	SW846 8270A	11/11-11/15/94	4315088
4-Chloro-3-methylphenol	ND	360	SW846 8270A	11/11-11/15/94	4315088
2-Chloronaphthalene	ND	360	SW846 8270A	11/11-11/15/94	4315088
2-Chlorophenol	ND	360	SW846 8270A	11/11-11/15/94	4315088
4-Chlorophenyl phenyl ether	ND	360	SW846 8270A	11/11-11/15/94	4315088
Chrysene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Dibenz(a,h)anthracene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Di-n-butyl phthalate	ND	360	SW846 8270A	11/11-11/15/94	4315088
1,2-Dichlorobenzene	ND	360	SW846 8270A	11/11-11/15/94	4315088

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	66	(10 - 155)
2-Fluorobiphenyl	63	(12 - 153)
Terphenyl-d14	80	(13 - 140)
2-Fluorophenol	59	(24 - 118)
Phenol-d5	64	(17 - 124)
2,4,6-Tribromophenol	84	(10 - 156)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP107
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	ND	360	SW846 8270A	11/11-11/15/94	4315088
1,4-Dichlorobenzene	ND	360	SW846 8270A	11/11-11/15/94	4315088
3,3'-Dichlorobenzidine	ND	1,900	SW846 8270A	11/11-11/15/94	4315088
2,4-Dichlorophenol	ND	360	SW846 8270A	11/11-11/15/94	4315088
Diethyl phthalate	ND	360	SW846 8270A	11/11-11/15/94	4315088
2,4-Dimethylphenol	ND	360	SW846 8270A	11/11-11/15/94	4315088
Dimethyl phthalate	ND	360	SW846 8270A	11/11-11/15/94	4315088
Di-n-octyl phthalate	ND	360	SW846 8270A	11/11-11/15/94	4315088
4,6-Dinitro-2-methylphenol	ND	1,900	SW846 8270A	11/11-11/15/94	4315088
2,4-Dinitrophenol	ND	1,900	SW846 8270A	11/11-11/15/94	4315088
2,4-Dinitrotoluene	ND	360	SW846 8270A	11/11-11/15/94	4315088
2,6-Dinitrotoluene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Fluoranthene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Fluorene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Hexachlorobenzene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Hexachlorobutadiene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Hexachlorocyclopentadiene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Hexachloroethane	ND	360	SW846 8270A	11/11-11/15/94	4315088
Indeno(1,2,3-cd)pyrene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Isophorone	ND	360	SW846 8270A	11/11-11/15/94	4315088
Naphthalene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Nitrobenzene	ND	360	SW846 8270A	11/11-11/15/94	4315088
2-Nitrophenol	ND	360	SW846 8270A	11/11-11/15/94	4315088

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	66	(10 - 155)
2-Fluorobiphenyl	63	(12 - 153)
Terphenyl-d14	80	(13 - 140)
2-Fluorophenol	59	(24 - 118)
Phenol-d5	64	(17 - 124)
2,4,6-Tribromophenol	84	(10 - 156)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP107
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Nitrophenol	ND	1,900	SW846 8270A	11/11-11/15/94	4315088
N-Nitrosodimethylamine	ND	360	SW846 8270A	11/11-11/15/94	4315088
N-Nitrosodi-n-propylamine	ND	360	SW846 8270A	11/11-11/15/94	4315088
N-Nitrosodiphenylamine	ND	360	SW846 8270A	11/11-11/15/94	4315088
Pentachlorophenol	ND	1,900	SW846 8270A	11/11-11/15/94	4315088
Phenanthrene	ND	360	SW846 8270A	11/11-11/15/94	4315088
Phenol	ND	360	SW846 8270A	11/11-11/15/94	4315088
Pyrene	ND	360	SW846 8270A	11/11-11/15/94	4315088
1,2,4-Trichlorobenzene	ND	360	SW846 8270A	11/11-11/15/94	4315088
2,4,6-Trichlorophenol	ND	360	SW846 8270A	11/11-11/15/94	4315088

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	66	(10 - 155)
2-Fluorobiphenyl	63	(12 - 153)
Terphenyl-d14	80	(13 - 140)
2-Fluorophenol	59	(24 - 118)
Phenol-d5	64	(17 - 124)
2,4,6-Tribromophenol	84	(10 - 156)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	0.27 J	0.55	mg/kg	SW846 6010A	11/09-11/10/94	4312144
Chromium	2.7 J	2.8	mg/kg	SW846 6010A	11/09-11/10/94	4312144
Arsenic	1.3	0.28	mg/kg	SW846 7060	11/09-11/11/94	4312144
Lead	6.3	0.28	mg/kg	SW846 7421	11/09-11/14/94	4312144

NOTE: DRY WEIGHT
J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00601

WO #: A15LP
LAB #: B4K040018-001
MATRIX: SOLID

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons Total Recoverable	299	5.5	mg/kg	MCAWW 418.1 M	11/14-11/15/94	4319111
Solids, Total (TS)	90.5	1.0	%	MCAWW 160.3 M	11/07-11/08/94	4311086

NOTE: DRY WEIGHT

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2107
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	10	SW846 8240A	11/08/94	4313063
Benzene	ND	1.0	SW846 8240A	11/08/94	4313063
Dichlorobromomethane	ND	1.0	SW846 8240A	11/08/94	4313063
Bromoform	ND	1.0	SW846 8240A	11/08/94	4313063
Bromomethane	ND	1.0	SW846 8240A	11/08/94	4313063
2-Butanone	ND	10	SW846 8240A	11/08/94	4313063
Carbon disulfide	ND	1.0	SW846 8240A	11/08/94	4313063
Carbon tetrachloride	ND	1.0	SW846 8240A	11/08/94	4313063
Chlorobenzene	ND	1.0	SW846 8240A	11/08/94	4313063
Dibromochloromethane	ND	1.0	SW846 8240A	11/08/94	4313063
Chloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
Chloroform	ND	1.0	SW846 8240A	11/08/94	4313063
Chloromethane	ND	1.0	SW846 8240A	11/08/94	43 53
1,1-Dichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
1,2-Dichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
1,1-Dichloroethene	ND	1.0	SW846 8240A	11/08/94	4313063
1,2-Dichloroethene, Total	ND	1.0	SW846 8240A	11/08/94	4313063
1,2-Dichloropropane	ND	1.0	SW846 8240A	11/08/94	4313063
cis-1,3-Dichloropropene	ND	1.0	SW846 8240A	11/08/94	4313063
trans-1,3-Dichloropropene	ND	1.0	SW846 8240A	11/08/94	4313063
Ethylbenzene	ND	1.0	SW846 8240A	11/08/94	4313063
Methylene chloride	1.0 B	1.0	SW846 8240A	11/08/94	4313063
4-Methyl-2-pentanone	ND	10	SW846 8240A	11/08/94	4313063

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	109	(78 - 130)
Toluene-d8	100	(90 - 109)
Bromofluorobenzene	94	(81 - 117)

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
B (COMPOUND DETECTED IN METHOD BLANK ASSOCIATED WITH THIS SAMPLE)

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2107
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Volatiles
2 OF 2

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Styrene	ND	1.0	SW846 8240A	11/08/94	4313063
1,1,2,2-Tetrachloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
Tetrachloroethene	ND	1.0	SW846 8240A	11/08/94	4313063
Toluene	ND	1.0	SW846 8240A	11/08/94	4313063
1,1,1-Trichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
1,1,2-Trichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
Trichloroethene	ND	1.0	SW846 8240A	11/08/94	4313063
Vinyl chloride	ND	1.0	SW846 8240A	11/08/94	4313063
2-Hexanone	ND	10	SW846 8240A	11/08/94	4313063
Xylenes, Total	ND	1.0	SW846 8240A	11/08/94	4313063

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	109	(78 - 130)
Toluene-d8	100	(90 - 109)
Bromofluorobenzene	94	(81 - 117)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2106
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
PCB-1016	ND	1.0	SW846 8080	11/10-11/21/94	4314125
PCB-1221	ND	1.0	SW846 8080	11/10-11/21/94	4314125
PCB-1232	ND	1.0	SW846 8080	11/10-11/21/94	4314125
PCB-1242	ND	1.0	SW846 8080	11/10-11/21/94	4314125
PCB-1248	ND	1.0	SW846 8080	11/10-11/21/94	4314125
PCB-1254	ND	1.0	SW846 8080	11/10-11/21/94	4314125
PCB-1260	ND	1.0	SW846 8080	11/10-11/21/94	4314125

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Tetrachloro-m-xylene	62	(33 - 122)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2108
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acenaphthene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Acenaphthylene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Anthracene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Benzidine	ND	50	SW846 8270A	11/10-11/16/94	4314121
Benzo(a)anthracene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Benzo(b)fluoranthene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Benzo(k)fluoranthene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Benzo(ghi)perylene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Benzo(a)pyrene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Bis(2-chloroethoxy)methane	ND	10	SW846 8270A	11/10-11/16/94	4314121
Bis(2-chloroethyl)ether	ND	10	SW846 8270A	11/10-11/16/94	4314121
Bis(2-chloroisopropyl)ether	ND	10	SW846 8270A	11/10-11/16/94	4314121
Bis(2-ethylhexyl)phthalate	ND	10	SW846 8270A	11/10-11/16/94	43[illegible]21
4-Bromophenyl phenyl ether	ND	10	SW846 8270A	11/10-11/16/94	43[illegible]21
Butyl benzyl phthalate	ND	10	SW846 8270A	11/10-11/16/94	4314121
4-Chloro-3-methylphenol	ND	10	SW846 8270A	11/10-11/16/94	4314121
2-Chloronaphthalene	ND	10	SW846 8270A	11/10-11/16/94	4314121
2-Chlorophenol	ND	10	SW846 8270A	11/10-11/16/94	4314121
4-Chlorophenyl phenyl ether	ND	10	SW846 8270A	11/10-11/16/94	4314121
Chrysene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Dibenz(a,h)anthracene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Di-n-butyl phthalate	ND	10	SW846 8270A	11/10-11/16/94	4314121
1,2-Dichlorobenzene	ND	10	SW846 8270A	11/10-11/16/94	4314121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	63	(26 - 131)
2-Fluorobiphenyl	65	(27 - 119)
Terphenyl-d14	95	(10 - 165)
2-Fluorophenol	61	(10 - 116)
Phenol-d5	58	(10 - 175)
2,4,6-Tribromophenol	71	(10 - 155)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2108
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Semi-Volatiles

2 OF 3

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	ND	10	SW846 8270A	11/10-11/16/94	4314121
1,4-Dichlorobenzene	ND	10	SW846 8270A	11/10-11/16/94	4314121
3,3'-Dichlorobenzidine	ND	50	SW846 8270A	11/10-11/16/94	4314121
2,4-Dichlorophenol	ND	10	SW846 8270A	11/10-11/16/94	4314121
Diethyl phthalate	ND	10	SW846 8270A	11/10-11/16/94	4314121
2,4-Dimethylphenol	ND	10	SW846 8270A	11/10-11/16/94	4314121
Dimethyl phthalate	ND	10	SW846 8270A	11/10-11/16/94	4314121
Di-n-octyl phthalate	ND	10	SW846 8270A	11/10-11/16/94	4314121
4,6-Dinitro-2-methylphenol	ND	50	SW846 8270A	11/10-11/16/94	4314121
2,4-Dinitrophenol	ND	50	SW846 8270A	11/10-11/16/94	4314121
2,4-Dinitrotoluene	ND	10	SW846 8270A	11/10-11/16/94	4314121
2,6-Dinitrotoluene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Fluoranthene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Fluorene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Hexachlorobenzene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Hexachlorobutadiene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Hexachlorocyclopentadiene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Hexachloroethane	ND	10	SW846 8270A	11/10-11/16/94	4314121
Indeno(1,2,3-cd)pyrene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Isophorone	ND	10	SW846 8270A	11/10-11/16/94	4314121
Naphthalene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Nitrobenzene	ND	10	SW846 8270A	11/10-11/16/94	4314121
2-Nitrophenol	ND	10	SW846 8270A	11/10-11/16/94	4314121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	63	(26 - 131)
2-Fluorobiphenyl	65	(27 - 119)
Terphenyl-d14	95	(10 - 165)
2-Fluorophenol	61	(10 - 116)
Phenol-d5	58	(10 - 175)
2,4,6-Tribromophenol	71	(10 - 155)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2108
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
4-Nitrophenol	ND	50	SW846 8270A	11/10-11/16/94	4314121
N-Nitrosodimethylamine	ND	10	SW846 8270A	11/10-11/16/94	4314121
N-Nitrosodi-n-propylamine	ND	10	SW846 8270A	11/10-11/16/94	4314121
N-Nitrosodiphenylamine	ND	10	SW846 8270A	11/10-11/16/94	4314121
Pentachlorophenol	ND	50	SW846 8270A	11/10-11/16/94	4314121
Phenanthrene	ND	10	SW846 8270A	11/10-11/16/94	4314121
Phenol	ND	10	SW846 8270A	11/10-11/16/94	4314121
Pyrene	ND	10	SW846 8270A	11/10-11/16/94	4314121
1,2,4-Trichlorobenzene	ND	10	SW846 8270A	11/10-11/16/94	4314121
2,4,6-Trichlorophenol	ND	10	SW846 8270A	11/10-11/16/94	4314121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	63	(26 - 131)
2-Fluorobiphenyl	65	(27 - 119)
Terphenyl-d14	95	(10 - 165)
2-Fluorophenol	61	(10 - 116)
Phenol-d5	58	(10 - 175)
2,4,6-Tribromophenol	71	(10 - 155)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	ND	5.0	ug/L	SW846 6010A	11/09/94	4313024
Chromium	ND	50.0	ug/L	SW846 6010A	11/09/94	4313024
Arsenic	2.4 J	5.0	ug/L	SW846 7060	11/09-11/10/94	4313024
Lead	1.9 J	5.0	ug/L	SW846 7421	11/09/94	4313024

NOTE: AS RECEIVED
ND NOT DETECTED AT THE STATED REPORTING LIMIT
J ESTIMATED VALUE. (DETECTED), BUT BELOW QUANTITATION LIMIT.

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

EQUIPMENT BLANK

WO #: A15M2
LAB #: B4K040018-008
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons Total Recoverable	ND	1.0	mg/L	MCAWW 418.1	11/11/94	4315096

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLANK

WO #: A15M7101
LAB #: B4K040018-009
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acetone	ND	10	SW846 8240A	11/08/94	4313063
Benzene	ND	1.0	SW846 8240A	11/08/94	4313063
Dichlorobromomethane	ND	1.0	SW846 8240A	11/08/94	4313063
Bromoform	ND	1.0	SW846 8240A	11/08/94	4313063
Bromomethane	ND	1.0	SW846 8240A	11/08/94	4313063
2-Butanone	ND	10	SW846 8240A	11/08/94	4313063
Carbon disulfide	ND	1.0	SW846 8240A	11/08/94	4313063
Carbon tetrachloride	ND	1.0	SW846 8240A	11/08/94	4313063
Chlorobenzene	ND	1.0	SW846 8240A	11/08/94	4313063
Dibromochloromethane	ND	1.0	SW846 8240A	11/08/94	4313063
Chloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
Chloroform	ND	1.0	SW846 8240A	11/08/94	4313063
Chloromethane	ND	1.0	SW846 8240A	11/08/94	43 3
1,1-Dichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
1,2-Dichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
1,1-Dichloroethene	ND	1.0	SW846 8240A	11/08/94	4313063
1,2-Dichloroethene, Total	ND	1.0	SW846 8240A	11/08/94	4313063
1,2-Dichloropropane	ND	1.0	SW846 8240A	11/08/94	4313063
cis-1,3-Dichloropropene	ND	1.0	SW846 8240A	11/08/94	4313063
trans-1,3-Dichloropropene	ND	1.0	SW846 8240A	11/08/94	4313063
Ethylbenzene	ND	1.0	SW846 8240A	11/08/94	4313063
Methylene chloride	ND	1.0	SW846 8240A	11/08/94	4313063
4-Methyl-2-pentanone	ND	10	SW846 8240A	11/08/94	4313063

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	111	(78 - 130)
Toluene-d8	100	(90 - 109)
Bromofluorobenzene	97	(81 - 117)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLANK

WO #: A15M7101
LAB #: B4K040018-009
MATRIX: WATER

DATE SAMPLED: 11/03/94
DATE RECEIVED: 11/04/94

GC/MS Volatiles

2 OF 2

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Styrene	ND	1.0	SW846 8240A	11/08/94	4313063
1,1,2,2-Tetrachloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
Tetrachloroethene	ND	1.0	SW846 8240A	11/08/94	4313063
Toluene	ND	1.0	SW846 8240A	11/08/94	4313063
1,1,1-Trichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
1,1,2-Trichloroethane	ND	1.0	SW846 8240A	11/08/94	4313063
Trichloroethene	ND	1.0	SW846 8240A	11/08/94	4313063
Vinyl chloride	ND	1.0	SW846 8240A	11/08/94	4313063
2-Hexanone	ND	10	SW846 8240A	11/08/94	4313063
Xylenes, Total	ND	1.0	SW846 8240A	11/08/94	4313063

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	111	(78 - 130)
Toluene-d8	100	(90 - 109)
Bromofluorobenzene	97	(81 - 117)

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

Quanterra
Environmental Services

QUALITY CONTROL SECTION

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

Quanterra

QUALITY ASSURANCE / QUALITY CONTROL
PROGRAM SUMMARY

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

Surrogate Spike Recovery Evaluations

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

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

Laboratory Analytical Method Blank Evaluations

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

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

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

Laboratory Analytical Method Check Sample Evaluations

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

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

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

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

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

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

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

Analytical Result Qualifiers

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

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

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

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

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K090000-063

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Acetone	ND	10	11/08/94	4313063
Benzene	ND	1.0	11/08/94	4313063
Dichlorobromomethane	ND	1.0	11/08/94	4313063
Bromoform	ND	1.0	11/08/94	4313063
Bromomethane	ND	1.0	11/08/94	4313063
2-Butanone	ND	10	11/08/94	4313063
Carbon disulfide	ND	1.0	11/08/94	4313063
Carbon tetrachloride	ND	1.0	11/08/94	4313063
Chlorobenzene	ND	1.0	11/08/94	4313063
Dibromochloromethane	ND	1.0	11/08/94	4313063
Chloroethane	ND	1.0	11/08/94	4313063
Chloroform	ND	1.0	11/08/94	4313063
Chloromethane	ND	1.0	11/08/94	431[illegible]
1,1-Dichloroethane	ND	1.0	11/08/94	431[illegible]
1,2-Dichloroethane	ND	1.0	11/08/94	4313063
1,1-Dichloroethene	ND	1.0	11/08/94	4313063
1,2-Dichloroethene, Total	ND	1.0	11/08/94	4313063
1,2-Dichloropropane	ND	1.0	11/08/94	4313063
cis-1,3-Dichloropropene	ND	1.0	11/08/94	4313063
trans-1,3-Dichloropropene	ND	1.0	11/08/94	4313063
Ethylbenzene	ND	1.0	11/08/94	4313063
2-Hexanone	ND	10	11/08/94	4313063
Methylene chloride	2.4	1.0	11/08/94	4313063
4-Methyl-2-pentanone	ND	10	11/08/94	4313063
Styrene	ND	1.0	11/08/94	4313063

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	113	(78 - 130)
Toluene-d8	99	(90 - 109)
Bromofluorobenzene	98	(81 - 117)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K090000-063

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
1,1,2,2-Tetrachloroethane	ND	1.0	11/08/94	4313063
Tetrachloroethene	ND	1.0	11/08/94	4313063
Toluene	ND	1.0	11/08/94	4313063
1,1,1-Trichloroethane	ND	1.0	11/08/94	4313063
1,1,2-Trichloroethane	ND	1.0	11/08/94	4313063
Trichloroethene	ND	1.0	11/08/94	4313063
Vinyl chloride	ND	1.0	11/08/94	4313063
Xylenes, Total	ND	1.0	11/08/94	4313063

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	113	(78 - 130)
Toluene-d8	99	(90 - 109)
Bromofluorobenzene	98	(81 - 117)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K180000-125

GC/MS Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Acrolein	ND	50	11/17/94	4322125
Acrylonitrile	ND	50	11/17/94	4322125
Benzene	ND	5.0	11/17/94	4322125
Bromodichloromethane	ND	5.0	11/17/94	4322125
Bromoform	ND	5.0	11/17/94	4322125
Bromomethane	ND	5.0	11/17/94	4322125
Carbon tetrachloride	ND	5.0	11/17/94	4322125
Chlorobenzene	ND	5.0	11/17/94	4322125
Dibromochloromethane	ND	5.0	11/17/94	4322125
Chloroethane	ND	5.0	11/17/94	4322125
2-Chloroethyl vinyl ether	ND	5.0	11/17/94	4322125
Chloroform	ND	5.0	11/17/94	4322125
Chloromethane	ND	5.0	11/17/94	4322125
1,2-Dichlorobenzene	ND	5.0	11/17/94	4322125
1,3-Dichlorobenzene	ND	5.0	11/17/94	4322125
1,4-Dichlorobenzene	ND	5.0	11/17/94	4322125
1,1-Dichloroethane	ND	5.0	11/17/94	4322125
1,2-Dichloroethane	ND	5.0	11/17/94	4322125
1,1-Dichloroethene	ND	5.0	11/17/94	4322125
cis-1,2-Dichloroethene	ND	5.0	11/17/94	4322125
trans-1,2-Dichloroethene	ND	5.0	11/17/94	4322125
1,2-Dichloropropane	ND	5.0	11/17/94	4322125
cis-1,3-Dichloropropene	ND	5.0	11/17/94	4322125
trans-1,3-Dichloropropene	ND	5.0	11/17/94	4322125
Ethylbenzene	ND	5.0	11/17/94	4322125

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	113	(85 - 138)
Toluene-d8	98	(89 - 128)
Bromofluorobenzene	100	(83 - 128)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K180000-125

GC/MS Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Trichlorofluoromethane	ND	5.0	11/17/94	4322125
Methylene chloride	ND	5.0	11/17/94	4322125
1,1,2,2-Tetrachloroethane	ND	5.0	11/17/94	4322125
Tetrachloroethene	ND	5.0	11/17/94	4322125
Toluene	ND	5.0	11/17/94	4322125
1,1,1-Trichloroethane	ND	5.0	11/17/94	4322125
1,1,2-Trichloroethane	ND	5.0	11/17/94	4322125
Trichloroethene	ND	5.0	11/17/94	4322125
Vinyl chloride	ND	5.0	11/17/94	4322125
Xylenes, Total	ND	5.0	11/17/94	4322125

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	113	(85 - 138)
Toluene-d8	98	(89 - 128)
Bromofluorobenzene	100	(83 - 128)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K070000-092

GC Semi-Volatiles

PARAMETER	RESULT (mg/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
PCB-1016	ND	1.0	11/07-11/10/94	4311092
PCB-1221	ND	1.0	11/07-11/10/94	4311092
PCB-1232	ND	1.0	11/07-11/10/94	4311092
PCB-1242	ND	1.0	11/07-11/10/94	4311092
PCB-1248	ND	1.0	11/07-11/10/94	4311092
PCB-1254	ND	1.0	11/07-11/10/94	4311092
PCB-1260	ND	1.0	11/07-11/10/94	4311092

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Tetrachloro-m-xylene	120	(32 - 154)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K100000-125

GC Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
PCB-1016	ND	1.0	11/10-11/21/94	4314125
PCB-1221	ND	1.0	11/10-11/21/94	4314125
PCB-1232	ND	1.0	11/10-11/21/94	4314125
PCB-1242	ND	1.0	11/10-11/21/94	4314125
PCB-1248	ND	1.0	11/10-11/21/94	4314125
PCB-1254	ND	1.0	11/10-11/21/94	4314125
PCB-1260	ND	1.0	11/10-11/21/94	4314125

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Tetrachloro-m-xylene	70	(33 - 122)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K110000-088

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Acenaphthene	ND	330	11/11-11/15/94	4315088
Acenaphthylene	ND	330	11/11-11/15/94	4315088
Anthracene	ND	330	11/11-11/15/94	4315088
Benzidine	ND	1,700	11/11-11/15/94	4315088
Benzo(a)anthracene	ND	330	11/11-11/15/94	4315088
Benzo(b)fluoranthene	ND	330	11/11-11/15/94	4315088
Benzo(k)fluoranthene	ND	330	11/11-11/15/94	4315088
Benzo(ghi)perylene	ND	330	11/11-11/15/94	4315088
Benzo(a)pyrene	ND	330	11/11-11/15/94	4315088
Bis(2-chloroethoxy)methane	ND	330	11/11-11/15/94	4315088
Bis(2-chloroethyl)ether	ND	330	11/11-11/15/94	4315088
Bis(2-chloroisopropyl)ether	ND	330	11/11-11/15/94	4315088
Bis(2-ethylhexyl)phthalate	ND	330	11/11-11/15/94	431
4-Bromophenyl phenyl ether	ND	330	11/11-11/15/94	4315088
Butyl benzyl phthalate	ND	330	11/11-11/15/94	4315088
4-Chloro-3-methylphenol	ND	330	11/11-11/15/94	4315088
2-Chloronaphthalene	ND	330	11/11-11/15/94	4315088
2-Chlorophenol	ND	330	11/11-11/15/94	4315088
4-Chlorophenyl phenyl ether	ND	330	11/11-11/15/94	4315088
Chrysene	ND	330	11/11-11/15/94	4315088
Dibenz(a,h)anthracene	ND	330	11/11-11/15/94	4315088
Di-n-butyl phthalate	ND	330	11/11-11/15/94	4315088
1,2-Dichlorobenzene	ND	330	11/11-11/15/94	4315088
1,3-Dichlorobenzene	ND	330	11/11-11/15/94	4315088
1,4-Dichlorobenzene	ND	330	11/11-11/15/94	4315088

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	77	(10 - 155)
2-Fluorobiphenyl	74	(12 - 153)
Terphenyl-d14	96	(13 - 140)
2-Fluorophenol	70	(24 - 118)
Phenol-d5	78	(17 - 124)
2,4,6-Tribromophenol	87	(10 - 156)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K110000-088

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
3,3'-Dichlorobenzidine	ND	1,700	11/11-11/15/94	4315088
2,4-Dichlorophenol	ND	330	11/11-11/15/94	4315088
Diethyl phthalate	ND	330	11/11-11/15/94	4315088
2,4-Dimethylphenol	ND	330	11/11-11/15/94	4315088
Dimethyl phthalate	ND	330	11/11-11/15/94	4315088
Di-n-octyl phthalate	ND	330	11/11-11/15/94	4315088
4,6-Dinitro-2-methylphenol	ND	1,700	11/11-11/15/94	4315088
2,4-Dinitrophenol	ND	1,700	11/11-11/15/94	4315088
2,4-Dinitrotoluene	ND	330	11/11-11/15/94	4315088
2,6-Dinitrotoluene	ND	330	11/11-11/15/94	4315088
Fluoranthene	ND	330	11/11-11/15/94	4315088
Fluorene	ND	330	11/11-11/15/94	4315088
Hexachlorobenzene	ND	330	11/11-11/15/94	4315088
Hexachlorobutadiene	ND	330	11/11-11/15/94	4315088
Hexachlorocyclopentadiene	ND	330	11/11-11/15/94	4315088
Hexachloroethane	ND	330	11/11-11/15/94	4315088
Indeno(1,2,3-cd)pyrene	ND	330	11/11-11/15/94	4315088
Isophorone	ND	330	11/11-11/15/94	4315088
Naphthalene	ND	330	11/11-11/15/94	4315088
Nitrobenzene	ND	330	11/11-11/15/94	4315088
2-Nitrophenol	ND	330	11/11-11/15/94	4315088
4-Nitrophenol	ND	1,700	11/11-11/15/94	4315088
N-Nitrosodimethylamine	ND	330	11/11-11/15/94	4315088
N-Nitrosodi-n-propylamine	ND	330	11/11-11/15/94	4315088

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	77	(10 - 155)
2-Fluorobiphenyl	74	(12 - 153)
Terphenyl-d14	96	(13 - 140)
2-Fluorophenol	70	(24 - 118)
Phenol-d5	78	(17 - 124)
2,4,6-Tribromophenol	87	(10 - 156)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K110000-088

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/kg)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
N-Nitrosodiphenylamine	ND	330	11/11-11/15/94	4315088
Pentachlorophenol	ND	1,700	11/11-11/15/94	4315088
Phenanthrene	ND	330	11/11-11/15/94	4315088
Phenol	ND	330	11/11-11/15/94	4315088
Pyrene	ND	330	11/11-11/15/94	4315088
1,2,4-Trichlorobenzene	ND	330	11/11-11/15/94	4315088
2,4,6-Trichlorophenol	ND	330	11/11-11/15/94	4315088

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	77	(10 - 155)
2-Fluorobiphenyl	74	(12 - 153)
Terphenyl-d14	96	(13 - 140)
2-Fluorophenol	70	(24 - 118)
Phenol-d5	78	(17 - 124)
2,4,6-Tribromophenol	87	(10 - 156)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K100000-121

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Acenaphthene	ND	10	11/10-11/16/94	4314121
Acenaphthylene	ND	10	11/10-11/16/94	4314121
Anthracene	ND	10	11/10-11/16/94	4314121
Benzidine	ND	50	11/10-11/16/94	4314121
Benzo(a)anthracene	ND	10	11/10-11/16/94	4314121
Benzo(b)fluoranthene	ND	10	11/10-11/16/94	4314121
Benzo(k)fluoranthene	ND	10	11/10-11/16/94	4314121
Benzo(ghi)perylene	ND	10	11/10-11/16/94	4314121
Benzo(a)pyrene	ND	10	11/10-11/16/94	4314121
Bis(2-chloroethoxy)methane	ND	10	11/10-11/16/94	4314121
Bis(2-chloroethyl)ether	ND	10	11/10-11/16/94	4314121
Bis(2-chloroisopropyl)ether	ND	10	11/10-11/16/94	4314121
Bis(2-ethylhexyl)phthalate	ND	10	11/10-11/16/94	431 1
4-Bromophenyl phenyl ether	ND	10	11/10-11/16/94	4314121
Butyl benzyl phthalate	ND	10	11/10-11/16/94	4314121
4-Chloro-3-methylphenol	ND	10	11/10-11/16/94	4314121
2-Chloronaphthalene	ND	10	11/10-11/16/94	4314121
2-Chlorophenol	ND	10	11/10-11/16/94	4314121
4-Chlorophenyl phenyl ether	ND	10	11/10-11/16/94	4314121
Chrysene	ND	10	11/10-11/16/94	4314121
Dibenz(a,h)anthracene	ND	10	11/10-11/16/94	4314121
Di-n-butyl phthalate	ND	10	11/10-11/16/94	4314121
1,2-Dichlorobenzene	ND	10	11/10-11/16/94	4314121
1,3-Dichlorobenzene	ND	10	11/10-11/16/94	4314121
1,4-Dichlorobenzene	ND	10	11/10-11/16/94	4314121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(26 - 131)
2-Fluorobiphenyl	76	(27 - 119)
Terphenyl-d14	103	(10 - 165)
2-Fluorophenol	73	(10 - 116)
Phenol-d5	68	(10 - 175)
2,4,6-Tribromophenol	79	(10 - 155)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K100000-121

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
3,3'-Dichlorobenzidine	ND	50	11/10-11/16/94	4314121
2,4-Dichlorophenol	ND	10	11/10-11/16/94	4314121
Diethyl phthalate	ND	10	11/10-11/16/94	4314121
2,4-Dimethylphenol	ND	10	11/10-11/16/94	4314121
Dimethyl phthalate	ND	10	11/10-11/16/94	4314121
Di-n-octyl phthalate	ND	10	11/10-11/16/94	4314121
4,6-Dinitro-2-methylphenol	ND	50	11/10-11/16/94	4314121
2,4-Dinitrophenol	ND	50	11/10-11/16/94	4314121
2,4-Dinitrotoluene	ND	10	11/10-11/16/94	4314121
2,6-Dinitrotoluene	ND	10	11/10-11/16/94	4314121
Fluoranthene	ND	10	11/10-11/16/94	4314121
Fluorene	ND	10	11/10-11/16/94	4314121
Hexachlorobenzene	ND	10	11/10-11/16/94	431
Hexachlorobutadiene	ND	10	11/10-11/16/94	4314121
Hexachlorocyclopentadiene	ND	10	11/10-11/16/94	4314121
Hexachloroethane	ND	10	11/10-11/16/94	4314121
Indeno(1,2,3-cd)pyrene	ND	10	11/10-11/16/94	4314121
Isophorone	ND	10	11/10-11/16/94	4314121
Naphthalene	ND	10	11/10-11/16/94	4314121
Nitrobenzene	ND	10	11/10-11/16/94	4314121
2-Nitrophenol	ND	10	11/10-11/16/94	4314121
4-Nitrophenol	ND	50	11/10-11/16/94	4314121
N-Nitrosodimethylamine	ND	10	11/10-11/16/94	4314121
N-Nitrosodi-n-propylamine	ND	10	11/10-11/16/94	4314121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(26 - 131)
2-Fluorobiphenyl	76	(27 - 119)
Terphenyl-d14	103	(10 - 165)
2-Fluorophenol	73	(10 - 116)
Phenol-d5	68	(10 - 175)
2,4,6-Tribromophenol	79	(10 - 155)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K100000-121

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
N-Nitrosodiphenylamine	ND	10	11/10-11/16/94	4314121
Pentachlorophenol	ND	50	11/10-11/16/94	4314121
Phenanthrene	ND	10	11/10-11/16/94	4314121
Phenol	ND	10	11/10-11/16/94	4314121
Pyrene	ND	10	11/10-11/16/94	4314121
1,2,4-Trichlorobenzene	ND	10	11/10-11/16/94	4314121
2,4,6-Trichlorophenol	ND	10	11/10-11/16/94	4314121

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	73	(26 - 131)
2-Fluorobiphenyl	76	(27 - 119)
Terphenyl-d14	103	(10 - 165)
2-Fluorophenol	73	(10 - 116)
Phenol-d5	68	(10 - 175)
2,4,6-Tribromophenol	79	(10 - 155)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K040018

METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE
		BATCH:4312144			
Arsenic	ND	0.25	mg/kg	SW846 7060	11/09-11/11/94
Cadmium	ND	0.50	mg/kg	SW846 6010A	11/09-11/10/94
Chromium	ND	2.5	mg/kg	SW846 6010A	11/09-11/10/94
Lead	ND	0.25	mg/kg	SW846 7421	11/09-11/11/94
		BATCH:4313024			
Arsenic	ND	5.0	ug/L	SW846 7060	11/09/94
Cadmium	ND	5.0	ug/L	SW846 6010A	11/09/94
Chromium	ND	50.0	ug/L	SW846 6010A	11/09/94
Lead	ND	5.0	ug/L	SW846 7421	11/09/94

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B4K150000-111

INORGANIC ANALYTICAL REPORT

PARAMETER	RESULT	REPORTING LIMIT	UNIT	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons	ND	5.0	mg/kg	11/14-11/15/94	4319111
Petroleum Hydrocarbons	ND	5.0	mg/kg	11/17-11/18/94	4322088
Petroleum Hydrocarbons	ND	1.0	mg/L	11/11/94	4315096

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4313063
LAB #: B4K090000-063 C

PREPARATION DATE: 11/08/94
DATE ANALYZED: 11/08/94

GC/MS Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
1,1-Dichloroethene	94	(66-120)
Benzene	100	(76-119)
Trichloroethene	100	(75-119)
Toluene	101	(76-119)
Chlorobenzene	103	(80-121)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4322125
LAB #: B4K180000-125 C

PREPARATION DATE: 11/17/94
DATE ANALYZED: 11/17/94

GC/MS Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
1,1-Dichloroethene	97	(67-120)
Benzene	94	(78-118)
Trichloroethene	102	(75-116)
Toluene	95	(77-118)
Chlorobenzene	105	(82-116)

Quanterra
Environmental
Services

CHECK SAMPLE REPORT

QC BATCH: 4311092
LAB #: B4K070000-092 C

PREPARATION DATE: 11/07/94
DATE ANALYZED: 11/10/94

GC Semi-Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
PCB-1016	130	(32-143)
PCB-1260	110	(20-160)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4314125
LAB #: B4K100000-125 C

PREPARATION DATE: 11/10/94
DATE ANALYZED: 11/21/94

GC Semi-Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
PCB-1016	86	(64-122)
PCB-1260	71	(28-146)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4315088
LAB #: B4K110000-088 C

PREPARATION DATE: 11/11/94
DATE ANALYZED: 11/15/94

GC/MS Semi-Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Phenol	74	(35-98)
2-Chlorophenol	78	(36-96)
1,4-Dichlorobenzene	72	(49-127)
N-Nitrosodi-n-propylamine	87	(29-122)
1,2,4-Trichlorobenzene	71	(42-116)
4-Chloro-3-methylphenol	81	(30-118)
Acenaphthene	89	(43-114)
4-Nitrophenol	113	(10-140)
2,4-Dinitrotoluene	98	(33-124)
Pentachlorophenol	104	(10-140)
Pyrene	91	(36-123)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 4314121
LAB #: B4K100000-121 C

PREPARATION DATE: 11/10/94
DATE ANALYZED: 11/16/94

GC/MS Semi-Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Phenol	78	(10-113)
2-Chlorophenol	80	(17-108)
1,4-Dichlorobenzene	68	(24-133)
N-Nitrosodi-n-propylamine	70	(12-139)
1,2,4-Trichlorobenzene	75	(27-119)
4-Chloro-3-methylphenol	85	(17-120)
Acenaphthene	85	(24-127)
4-Nitrophenol	97	(10-138)
2,4-Dinitrotoluene	96	(15-138)
Pentachlorophenol	99	(10-145)
Pyrene	93	(20-137)

Quanterra
Environmental
Services

CHECK SAMPLE REPORT

LAB #: B4K040018

METALS

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS	PREPARATION - ANALYSIS DATE
	BATCH:4312144		
Arsenic	106	(78-118)	11/09-11/10/94
Cadmium	98	(71-110)	11/09-11/10/94
Chromium	99	(80-110)	11/09-11/10/94
Lead	98	(69-120)	11/09-11/10/94
	BATCH:4313024		
Arsenic	104	(77-118)	11/09/94
Cadmium	98	(83-117)	11/09/94
Chromium	100	(89-117)	11/09/94
Lead	101	(83-119)	11/09/94

Quanterra
Environmental Services

CHECK SAMPLE REPORT

LAB #: B4K040018

INORGANIC ANALYTICAL REPORT

COMPOUND	SPIKE PERCENT RECOVERY	LIMITS	PREPARATION - ANALYSIS DATE	Q/C BATCH
Petroleum Hydrocarbons Total Recoverable	90	(65-114)	11/14-11/15/94	4319111
Petroleum Hydrocarbons Total Recoverable	91	(65-114)	11/17-11/18/94	4322088
Petroleum Hydrocarbons Total Recoverable	93	(73-122)	11/11/94	4315096

Quanterra
Environmental Services

SAMPLE - SAMPLE DUP

WO #: A15LW

LAB #: B4K040018-007
MATRIX: SOLID

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

PARAMETER	RESULT SMP	DUP	RPD	RPD LIMIT	EXTRACTION / ANALYSIS DATE	QC BATCH
Solids, Total (TS)	94.3	94.5	0.2	(0-20)	11/07-11/08/94	4311086

Quanterra
Environmental Services

MATRIX SPIKE REPORT

QC BATCH: 4315088
LAB #: B4K040018-001 S
MATRIX: SOLID

WO #: A15LP
PREPARATION DATE: 11/11/94
DATE ANALYZED: 11/15/94

GC/MS Semi-Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	SPIKE/DUP PERCENT RECOVERY	Q/C LIMITS	RPD	RPD LIMIT
Phenol	86	69	(15-112)	22	(0-24)
2-Chlorophenol	83	70	(19-100)	18	(0-29)
1,4-Dichlorobenzene	81	63	(20-132)	26	(0-43)
N-Nitrosodi-n-propylamine	89	76	(25-114)	16	(0-44)
1,2,4-Trichlorobenzene	71	58	(38-136)	21	(0-24)
4-Chloro-3-methylphenol	91	83	(29-101)	9.8	(0-35)
Acenaphthene	93	89	(34-122)	4.7	(0-22)
4-Nitrophenol	120	121	(10-147)	0.82	(0-58)
2,4-Dinitrotoluene	95	98	(10-119)	2.9	(0-41)
Pentachlorophenol	103	90	(20-112)	14	(0-39)
Pyrene	95	94	(38-141)	1.1	(0-26)

Calculations are performed before rounding to avoid round-off errors in calculated results

Quanterra
Environmental Services

MATRIX SPIKE REPORT

LAB #: B4K040018-001

METALS

COMPOUND	SPIKE PERCENT RECOVERY	SPIKE/DUP PERCENT RECOVERY	Q/C LIMITS	RPD	RPD LIMITS	PREPARATION - ANALYSIS DATE
BATCH:4312144 MATRIX: SOLID						
Arsenic	86	78	(30-155)	9.8	(0-20)	11/09-11/11/94
Cadmium	90	94	(80-120)	4.1	(0-20)	11/09-11/10/94
Chromium	90	92	(80-120)	2.8	(0-20)	11/09-11/10/94
Lead	152	165	(30-157)	7.9	(0-27)	11/09-11/14/94

NOTE:

Calculations are performed before rounding to avoid round-off errors in calculated results

Quanterra Environmental Services, Tampa
Sample Shipper Evaluation and Receipt Form

Client: ABB Project Name/Number: Former UST loca

Samples Received by: Carol McNulty Date Received: 11/4/94
Signature

Sample Evaluation Form by: Carol McNulty
Signature

Type of shipping containers samples received in:

Quanterra cooler: X Client cooler: ____

Quanterra shipper ____ Box ____ Other ____

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

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

Cooler # ____ Temp 3 C Cooler # ____ Temp. ____ C

Comments: ____

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

Chain of Custody Record

Record 1 of 1

5699

Client: ABB-ES

Project Name / Location: Former UST location

Sampler(s): PJW

Project #: 152734

Item #	Date	Time	MATRIX	Sample Location	No. Of CONTAINERS	VOC-8240	PAH-8270/8310	METALS-(8 RCRA)	TRPH-FL-PRO	EDB-504	8240 TRPH; 8270 PAH; RCRA METALS	8240 TRPH; 8270 TCLP METALS (NO PCB)				Remarks
1	11-3-94	1245	GW	EQUIPMENT BLANK	09	3	2	2	1	1						
2	↓	1210	SOIL	05B00601	2	1					1					
3		1225	↓	06B00701	2	1					1					
4		1340		07B00601	2	1					1					
5		1350		PEN-3557-SB42	2	1						1				
6		1405		09B00901	2	1					1					
7		1420		13B00101	2	1					1					
8		—		09B00901D	2	1					1					
9																
10																
11																

Total Containers: ~~09~~ 22 Number of Coolers in Shipment: 01 Bailers: ∅

Report To: PAMELA J. WAGNER

Additional Comments:
(1) 8240 Trip Blank
STANDARD TURNAROUND.
NO PCB FOR 3557-SB42.

AB # 2103144142
W/O # 4350

Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
1	1-1	Earl A. Echen (Quanterra)	Fed Ex	10/27/94	1400
2	1-8	PJW	Fed Ex	11-3-94	1700
3			[illegible]	11/4/94	1100
4					
5					
6					

Original Accompanies Shipment

Quanterra Environmental Services

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

813 621-0784 Telephone
813 623-6021 Fax

ANALYTICAL REPORT

PROJECT NO. 7527.34

AVGAS PIPELINE AREA NADEP PENS

ABB ENVIRONMENTAL SERVICES

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

Joanne Anderson
Project Manager

April 28, 1995

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B5D140049

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
05B00702				
Arsenic	0.33	0.27	mg/kg	SW846 6010A
Petroleum Hydrocarbons, Total Recoverable	5.5	5.5	mg/kg	SW846 9073
Solids, Total (TS)	90.9	1.0	%	MCAWW 160.3
05B00802				
Arsenic	0.77	0.27	mg/kg	SW846 6010A
Cadmium	0.54	0.54	mg/kg	SW846 6010A
Lead	9.8	2.7	mg/kg	SW846 6010A
Petroleum Hydrocarbons, Total Recoverable	41.7	5.4	mg/kg	SW846 9073
Solids, Total (TS)	91.9	1.0	%	MCAWW 160.3
05B00902				
Solids, Total (TS)	85.5	1.0	%	MCAWW 160.3
04B01002				
Petroleum Hydrocarbons, Total Recoverable	73.1	5.8	mg/kg	SW846 9073
Solids, Total (TS)	86.9	1.0	%	MCAWW 160.3
04B01102				
Petroleum Hydrocarbons, Total Recoverable	8.8	5.1	mg/kg	SW846 9073
Solids, Total (TS)	97.1	1.0	%	MCAWW 160.3
04B01202				
Arsenic	0.60	0.26	mg/kg	SW846 6010A
Lead	3.8	2.6	mg/kg	SW846 6010A
Petroleum Hydrocarbons, Total Recoverable	205	5.2	mg/kg	SW846 9073
Solids, Total (TS)	96.8	1.0	%	MCAWW 160.3
04B01302				
Petroleum Hydrocarbons, Total Recoverable	31.0	5.3	mg/kg	SW846 9073

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B5D140049

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
Solids, Total (TS)	94.0	1.0	%	MCAWW 160.3
04B01002D				
Petroleum Hydrocarbons, Total Recoverable	42.8	5.4	mg/kg	SW846 9073
Solids, Total (TS)	92.9	1.0	%	MCAWW 160.3
05B00702D				
Arsenic	0.44	0.27	mg/kg	SW846 6010A
Cadmium	0.67	0.55	mg/kg	SW846 6010A
Lead	2.7	2.7	mg/kg	SW846 6010A
Solids, Total (TS)	91.5	1.0	%	MCAWW 160.3
07B00902D				
Arsenic	3.4	0.28	mg/kg	SW846 6010A
Lead	36.9	2.8	mg/kg	SW846 6010A
Solids, Total (TS)	90.9	1.0	%	MCAWW 160.3
07B00702				
Arsenic	0.78	0.28	mg/kg	SW846 6010A
Lead	7.1	2.8	mg/kg	SW846 6010A
Petroleum Hydrocarbons, Total Recoverable	119	5.7	mg/kg	SW846 9073
Solids, Total (TS)	88.0	1.0	%	MCAWW 160.3
07B00802				
Arsenic	0.94	0.27	mg/kg	SW846 6010A
Lead	12.2	2.7	mg/kg	SW846 6010A
Petroleum Hydrocarbons, Total Recoverable	44.2	5.3	mg/kg	SW846 9073
Solids, Total (TS)	94.3	1.0	%	MCAWW 160.3
07B00902				
Arsenic	6.2	0.28	mg/kg	SW846 6010A
Lead	73.2	2.8	mg/kg	SW846 6010A
Solids, Total (TS)	90.7	1.0	%	MCAWW 160.3

Quanterra
Environmental Services

ANALYTICAL METHODS SUMMARY

Parameters	Methods
Cadmium	MCAWW 200.7
Chromium	MCAWW 200.7
Petroleum Hydrocarbons Total Recoverable	MCAWW 418.1
Cadmium	SW846 6010A
Chromium	SW846 6010A
Lead	SW846 6010A
Petroleum Hydrocarbons, Total Recoverable	SW846 9073
Arsenic	SW846 6010A
Arsenic	MCAWW 200.7
Lead	MCAWW 200.7
Solids, Total (TS)	MCAWW 160.3 MODIFIED

References:

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

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

Quanterra
Environmental Services

SAMPLE SUMMARY

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

WO #	LABORATORY ID	SAMPLE IDENTIFICATION
A41DV	B5D140049-001	05B00702
A41DX	B5D140049-002	05B00802
A41E1	B5D140049-003	05B00902
A41E4	B5D140049-004	04B01002
A41E8	B5D140049-005	04B01102
A41E9	B5D140049-006	04B01202
A41EA	B5D140049-007	04B01302
A41ED	B5D140049-008	04B01002D
A41EE	B5D140049-009	05B00702D
A41EF	B5D140049-010	07B00902D
A41EJ	B5D140049-011	07B00702
A41EK	B5D140049-012	07B00802
A41EL	B5D140049-013	07B00902
A41EN	B5D140049-014	12B00603
A41EP	B5D140049-015	10B00503
A41EQ	B5D140049-016	10B00603
A41ER	B5D140049-017	10B00603D
A41EW	B5D140049-018	05B0EB02

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00702

WO #: A41DV -- DATE SAMPLED: 4/11/95
LAB #: B5D140049-001 DATE RECEIVED: 4/13/95
MATRIX: SOLID

- - - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	ND	0.55	mg/kg	SW846 6010A	4/19- 4/21/95	5108112
Chromium	ND	2.7	mg/kg	SW846 6010A	4/19- 4/21/95	5108112
Lead	ND	2.7	mg/kg	SW846 6010A	4/19- 4/21/95	5108112
Arsenic	0.33	0.27	mg/kg	SW846 6010A	4/19- 4/21/95	5108112

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00702

WO #: A41DV
LAB #: B5D140049-001
MATRIX: SOLID

DATE SAMPLED: 4/11/95
DATE RECEIVED: 4/13/95

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons, Total Recoverable	5.5	5.5	mg/kg	SW846 9073	4/24- 4/25/95	5114119
Solids, Total (TS)	90.9	1.0	%	MCAWW 160.3 M	4/25- 4/26/95	5116069

NOTE: AS RECEIVED

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00802

WO #: A41DX
LAB #: B5D140049-002
MATRIX: SOLID

DATE SAMPLED: 4/11/95
DATE RECEIVED: 4/13/95

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	0.54	0.54	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Chromium	ND	2.7	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Lead	9.8	2.7	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Arsenic	0.77	0.27	mg/kg	SW846 6010A	4/19- 4/24/95	5108112

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00802

WO #: A41DX
LAB #: B5D140049-002
MATRIX: SOLID

DATE SAMPLED: 4/11/95
DATE RECEIVED: 4/13/95

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons, Total Recoverable	41.7	5.4	mg/kg	SW846 9073	4/24- 4/25/95	5114119
Solids, Total (TS)	91.9	1.0	%	MCAWW 160.3 M	4/25- 4/26/95	5116069

NOTE: AS RECEIVED

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00902

WO #: A41E1 -- DATE SAMPLED: 4/11/95
LAB #: B5D140049-003 DATE RECEIVED: 4/13/95
MATRIX: SOLID

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	ND	0.58	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Chromium	ND	2.9	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Lead	ND	2.9	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Arsenic	ND	0.29	mg/kg	SW846 6010A	4/19- 4/24/95	5108112

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00902

WO #: A41E1 -- DATE SAMPLED: 4/11/95
LAB #: B5D140049-003 DATE RECEIVED: 4/13/95
MATRIX: SOLID

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons, Total Recoverable	ND	5.8	mg/kg	SW846 9073	4/24- 4/25/95	5114119
Solids, Total (TS)	85.5	1.0	%	MCAWW 160.3 M	4/25- 4/26/95	5116069

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00702D

WO #: A41EE
LAB #: B5D140049-009
MATRIX: SOLID

DATE SAMPLED: 4/11/95
DATE RECEIVED: 4/13/95

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	0.67	0.55	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Chromium	ND	2.7	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Lead	2.7	2.7	mg/kg	SW846 6010A	4/19- 4/24/95	5108112
Arsenic	0.44	0.27	mg/kg	SW846 6010A	4/19- 4/24/95	5108112

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B00702D

WO #: A41EE
LAB #: B5D140049-009
MATRIX: SOLID

DATE SAMPLED: 4/11/95
DATE RECEIVED: 4/13/95

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons, Total Recoverable	ND	5.5	mg/kg	SW846 9073	4/24- 4/25/95	5114119
Solids, Total (TS)	91.5	1.0	%	MCAWW 160.3 M	4/25- 4/26/95	5116069

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B0EB02

WO #: A41EW
LAB #: B5D140049-018
MATRIX: WATER

DATE SAMPLED: 4/11/95
DATE RECEIVED: 4/13/95

REQUESTED METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	ND	5.0	ug/L	MCAWW 200.7	4/18- 4/19/95	5107143
Chromium	ND	50.0	ug/L	MCAWW 200.7	4/18- 4/19/95	5107143
Arsenic	ND	5.0	ug/L	MCAWW 200.7	4/18- 4/19/95	5107143
Lead	ND	5.0	ug/L	MCAWW 200.7	4/18- 4/19/95	5107143

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B0EB02

WO #: A41EW
LAB #: B5D140049-018
MATRIX: WATER

DATE SAMPLED: 4/11/95
DATE RECEIVED: 4/13/95

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons Total Recoverable	ND	1.0	mg/L	MCAWW 418.1	4/20/95	5110064

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

Quanterra
Environmental Services

Quality Control Summary

Quanterra QC Program Summary

Method Blanks

Laboratory Control Samples

Matrix Spike/Matrix Spike Duplicates

Chain-of-Custody

Quanterra
Environmental Services

Quanterra Quality Control Program Summary

Quanterra Environmental Services considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with analytical results. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow. Further documentation of specific policies and procedures in use are available, upon request, from the Quanterra Quality Control Department.

The program described below provides Quanterra's interpretation of QC requirements described in SW-846, 3rd edition -Final Update II. Additional interpretations specific to other aspects of methods performed, such as instrument calibration and bench procedures, are described in program-specific documents (e.g. US Corps of Engineers, AFCEE, etc.) and associated method standard operating procedures. Where explicit program requirements or project requirements exist, certain elements of the Quanterra QC Program may be superseded by these requirements.

Elements of the Quanterra QC Program

Where other clear regulatory guidance, contract specifications, or client requirements are not available, the Quanterra QC Program provides guidance for Batch QC requirements. The Quality Control Batch is a set of up to 20 field samples of similar matrix, which are processed together under the same conditions, within the same time frame. Included in each Quality Control Batch is a Method Blank, Laboratory Control Sample, and Matrix Spike Duplicate. For methods that require independent sample preparation prior to analysis, the QC Batch is defined at the preparation stage. For methods that do not require independent sample preparation, the QC Batch is defined at the instrument. The QC Batch Number is provided on each result page in association with the parameter(s) presented, and may be used to cross-reference sample results with the associated QC data.

Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interference and background contamination levels associated with each applicable analytical method. Method blanks include all aspects of actual laboratory procedures involving sample preparation and analysis, substituting analyte-free water or solid for the actual sample. Under normal circumstances, the Method Blank should not exhibit analytes of interest above the reported detection limit. Due to the presence of some analytes in a typical laboratory setting, the following common laboratory contaminants are exceptions to this rule, provided they are not present in the method blank at greater than five times the reporting limit.

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

A method blank is performed with each analytical batch. A minimum of 5% of all laboratory analyses are method blanks.

Laboratory Control Sample (LCS) Evaluations

Known concentrations of designated matrix spike (target analyte) compounds are added to a method blank prior to extraction and analysis. Percent recovery determinations of individual target analytes in the LCS demonstrate the laboratory's method performance for the QC Batch relative to these target analytes (or other individual components represented by a subset of control analytes). Percent recovery data is displayed alongside acceptance criteria, that is typically derived from laboratory historical data. Failure of a Laboratory Control Sample to meet established recovery criteria for control analytes is cause for corrective actions to occur, which typically includes re-extraction and re-analysis of all samples associated with the QC Batch. An LCS is performed with each analytical batch. A minimum of 5% of all laboratory analyses are laboratory control samples.

Quanterra
Environmental Services

Quanterra Quality Control Program Summary (continued)

Surrogate Spike Recovery Evaluations

For GC and GC/MS analyses, known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added to sample fractions prior to sample extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is one indication of the overall method efficiency for the individual sample. The surrogate spike recovery data is displayed alongside acceptance limits at the bottom of each applicable analytical result report page. Where sufficient laboratory-generated data does not yet exist to determine appropriate control limits, advisory limits may be enacted until sufficient data is collected to allow implementation of control limits.

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

In conjunction with the analysis of a client-provided field sample, a known concentration of designated matrix spike compounds (target analytes) are added to two aliquots of the actual sample. Percent recovery determinations are calculated from both spiked aliquots, using target analyte concentrations already present in the actual sample as a baseline. The percent recovery determinations indicate the accuracy of the method specific to the target analytes (or other individual components represented by a subset of control analytes) in the individual sample matrix. Comparison of the percent recoveries in the two spiked aliquots yields a relative percent difference (RPD). Percent recovery and relative percent difference data is displayed alongside historical criteria, that may be used to judge individual sample matrix effects for specific analytes. MS/MSD data is evaluated by the laboratory with respect to the individual sample matrix. In cases where MS/MSD data indicate sample method performance outside of historical criteria, the laboratory control sample results are referenced to ensure acceptable method performance by the laboratory for the sample batch. For analyses which are inappropriately suited for matrix spikes (e.g. pH), non-spiked duplicate analyses are performed to generate precision data. Matrix spike duplicates are typically performed on at least one sample within each analytical batch. A minimum of 10% of all laboratory analyses are matrix spikes or duplicates.

Corrective Action Evaluations

The goal of the Quanterra Quality Control Program is to generate data that demonstrates process control, and allows for client usability of data. Where the analytical process is demonstrated to vary from established criteria, or client requirements have not been met, data evaluation resulting in corrective action may be required. Corrective action may include re-preparation and/or reanalysis of field samples and QC samples. Where appropriate or necessary to allow proper interpretation of results presented in the final report, details of corrective actions taken during the laboratory processing of samples are presented as a case narrative at the front of the report. Alternatively, routine corrective action, such as reanalysis, may be footnoted on individual sample result pages.

Analytical Result Qualifier Flags

Where applicable , data qualifiers may be appended to analytical results in order to allow for proper interpretation of the result presented. Typically, the presence of data qualifier flag on an analytical result page is accompanied by a footnote explaining the qualifier. Common data qualifiers include, but are no limited to the following:

J -indicates an estimated concentration is reported due to method limitations such as matrix interference or instrumental detection limitations.

B -indicates the presence of a particular analyte in the associated laboratory method blank.

DIL -indicates percent recovery determination was not possible due to dilution associated with the sample matrix conditions or high target analyte concentrations.

X -indicates internal standards used for a GC or GC/MS analysis did not meet established criteria, typically due to a sample matrix effect.

E -indicates an estimated concentration is reported due to analyte response beyond the established instrumental calibration range, typically due to presence of a wide range of target analyte concentrations.

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5D140049

METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE
		BATCH:5107143			
Arsenic	ND	5.0	ug/L	MCAWW 200.7	4/18- 4/19/95
Cadmium	ND	5.0	ug/L	MCAWW 200.7	4/18- 4/19/95
Chromium	ND	50.0	ug/L	MCAWW 200.7	4/18- 4/19/95
Lead	ND	5.0	ug/L	MCAWW 200.7	4/18- 4/19/95
		BATCH:5108112			
Arsenic	ND	0.25	mg/kg	SW846 6010A	4/19- 4/21/95
Cadmium	ND	0.50	mg/kg	SW846 6010A	4/19- 4/21/95
Chromium	ND	2.5	mg/kg	SW846 6010A	4/19- 4/21/95
Lead	ND	2.5	mg/kg	SW846 6010A	4/19- 4/21/95

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental
Services

INTRA-LAB BLANK REPORT

LAB #: B5D240000-119

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons,	ND	5.0	mg/kg	4/24- 4/25/95	5114119
Petroleum Hydrocarbons,	ND	5.0	mg/kg	4/25- 4/27/95	5116042
Petroleum Hydrocarbons	ND	1.0	mg/L	4/20/95	5110064

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

LAB #: B5D140049

METALS

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS	PREPARATION - ANALYSIS DATE
	BATCH:5107143		
Arsenic	99	(80-120)	4/18- 4/19/95
Cadmium	104	(83-117)	4/18- 4/19/95
Chromium	104	(89-117)	4/18- 4/19/95
Lead	100	(80-120)	4/18- 4/19/95
	BATCH:5108112		
Arsenic	89	(80-120)	4/19- 4/21/95
Cadmium	93	(71-110)	4/19- 4/21/95
Chromium	93	(80-110)	4/19- 4/21/95
Lead	89	(72-112)	4/19- 4/21/95

Quanterra
Environmental Services

CHECK SAMPLE REPORT

LAB #: B5D140049

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

COMPOUND	SPIKE PERCENT RECOVERY	LIMITS	PREPARATION - ANALYSIS DATE	Q/C BATCH
Petroleum Hydrocarbons, Total Recoverable	109	(65-114)	4/24- 4/25/95	5114119
Petroleum Hydrocarbons, Total Recoverable	90	(65-114)	4/25- 4/27/95	5116042
Petroleum Hydrocarbons Total Recoverable	114	(73-122)	4/20/95	5110064

Quanterra
Environmental Services

MATRIX SPIKE REPORT

LAB #: B5D140049-001

METALS

COMPOUND	SPIKE PERCENT RECOVERY	SPIKE/DUP PERCENT RECOVERY	Q/C LIMITS	RPD	RPD LIMITS	PREPARATION - ANALYSIS DATE
		BATCH:5108112 MATRIX: SOLID				
Arsenic	92	91	(80-120)	0.59	(0-20)	4/19- 4/21/95
Cadmium	95	95	(80-120)	1.0	(0-20)	4/19- 4/21/95
Chromium	94	94	(80-120)	0.57	(0-20)	4/19- 4/21/95
Lead	92	91	(80-120)	1.5	(0-20)	4/19- 4/21/95

NOTE:

Calculations are performed before rounding to avoid round-off errors in calculated results

Quanterra
Environmental Services

MATRIX SPIKE REPORT

Lot #: B5D140049

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

COMPOUND	RECOVERY PERCENT MS	MSD	Q/C LIMITS	RPD	RPD LIMITS	PREPARATION - ANALYSIS DATE	Q/C BATCH
Lab# B5D140049- 17 Matrix: SOLID							
Petroleum Hydrocarbons, Total Recoverable	95	92	(50-140)	4.0	30	4/25- 4/27/95	5116042

Quanterra Environmental Services, Tampa
Sample Shipper Evaluation and Receipt Form

Client: ABB Project Name/Number: NAVEP Pensacola

Samples Received by: Carol McNulty Date Received: 4/13/95
Signature

Sample Evaluation Form by: Carol McNulty
Signature

Type of shipping containers samples received in:

Quanterra cooler: X Client cooler: ____

Quanterra shipper ____ Box ____ Other ____

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

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

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

Comments: Some bottle labels do not match COC

In laboratory
Ch...n of Custody

BRECKENRIDGE PKWY., STE. H
TAMPA, FL 33610
PHONE (813) 621-0784 FAX (813) 623-6021

Quant... ra
Env... mental
Services

CLIENT CODE _____
QUOTE / SAR NUMBER _____
Chain-of Custody Record

78293

PROJ. NO. 7527.34 | PROJECT NAME/LOCATION: UST SITES, NAVY PENSACOLA

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	PARAMETER: TRPH	PARAMETER: As, Cd, Cr, Pb	REMARKS
	4-11-95	1650	X		05B00702	1	✓	✓	
		1655	X		05B00802	1	✓	✓	
		1660	X		05B00902	1	✓	✓	
		1020	X		04B01002	1	✓	✓	
		1022	X		04B01102	1	✓	✓	
		1600	X		04B01202	1	✓	✓	
		1605	X		04B01302	1	✓	✓	
		—	X		04B01002D	1	✓	✓	
		—	X		05B00702D	1	✓	✓	
		—	X		07B00902D	1	✓	✓	
		1815	X		07B00702	1	✓	✓	
		1820	X		07B00802	1	✓	✓	
		1825	X		07B00902	1	✓	✓	
		1745	X	X	05B0EB02	2	✓	✓	
	4-12-95	1430	X		12B00603	1	✓	✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
	4-12-95 1700				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
			4/13/95 1000	STANDARD TURNAROUND ~~3 working days~~ PW	

Distribution Original Accompanies Shipment. Copy returned with Report.

ORM 004

Interlaboratory Chain of Custody

BRECKENRIDGE PKWY., STE. H
TAMPA, FL 33610
PHONE (813) 621-0784 FAX (813) 623-6021

Quanterra Environmental Services

CLIENT CODE _____

QUOTE / SAR NUMBER _____

Chain-of Custody Record

78281

PROJ. NO. 7527.34 | PROJECT NAME/LOCATION UST Sites, NADEP PENSACOLA

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB.	STATION LOCATION	NO. OF CONTAINERS	PARAMETER: TRPH	PARAMETER: Pb, As, Cd, Cr	REMARKS
	4-12-95	1610	X		10B000503	1	✓	✓	
	"	1610	X		10B000603	1	✓	✓	
	"	—	X		10B000603D	1	✓	✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	4-12-95 1700				
[signature]					

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		[signature]	4/13/95 1000	

Distribution Original Accompanies Shipment. Copy returned with Report.

ORM 004

Quanterra Environmental Services

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

813 621-0784 Telephone
813 623-6021 Fax

ANALYTICAL REPORT

PROJECT NO. 7527.34

AVGAS PIPELINE AREA NADEP PENS

ABB ENVIRONMENTAL SERVICES

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

Joanne Anderson
Project Manager

April 28, 1995

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B5D150015

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
05B01002				
Petroleum Hydrocarbons, Total Recoverable	14.6	6.0	mg/kg	SW846 9073
Solids, Total (TS)	83.2	1.0	%	MCAWW 160.3

Quanterra
Environmental Services

ANALYTICAL METHODS SUMMARY

Parameters	Methods
Cadmium	SW846 6010A
Chromium	SW846 6010A
Lead	SW846 6010A
Petroleum Hydrocarbons, Total Recoverable	SW846 9073
Arsenic	SW846 6010A
Solids, Total (TS)	MCAWW 160.3 MODIFIED

References:

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

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

Quanterra
Environmental Services

SAMPLE SUMMARY

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

WO #	LABORATORY ID	SAMPLE IDENTIFICATION
A41QR	B5D150015-001	05B01002

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B01002

WO #: A41QR
LAB #: B5D150015-001
MATRIX: SOLID

DATE SAMPLED: 4/13/95
DATE RECEIVED: 4/14/95

- - - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Cadmium	ND	0.60	mg/kg	SW846 6010A	4/19- 4/21/95	5108113
Chromium	ND	3.0	mg/kg	SW846 6010A	4/19- 4/21/95	5108113
Lead	ND	3.0	mg/kg	SW846 6010A	4/19- 4/21/95	5108113
Arsenic	ND	0.30	mg/kg	SW846 6010A	4/19- 4/21/95	5108113

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05B01002

WO #: A41QR
LAB #: B5D150015-001
MATRIX: SOLID

DATE SAMPLED: 4/13/95
DATE RECEIVED: 4/14/95

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons, Total Recoverable	14.6	6.0	mg/kg	SW846 9073	4/26- 4/27/95	5116043
Solids, Total (TS)	83.2	1.0	%	MCAWW 160.3 M	4/21/95	5111092

NOTE: DRY WEIGHT

Quanterra
Environmental
Services

Quality Control Summary

Quanterra QC Program Summary

Method Blanks

Laboratory Control Samples

Matrix Spike/Matrix Spike Duplicates

Chain-of-Custody

Quanterra
Environmental Services

Quanterra Quality Control Program Summary

Quanterra Environmental Services considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with analytical results. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow. Further documentation of specific policies and procedures in use are available, upon request, from the Quanterra Quality Control Department.

The program described below provides Quanterra's interpretation of QC requirements described in SW-846, 3rd edition -Final Update II. Additional interpretations specific to other aspects of methods performed, such as instrument calibration and bench procedures, are described in program-specific documents (e.g. US Corps of Engineers, AFCEE, etc.) and associated method standard operating procedures. Where explicit program requirements or project requirements exist, certain elements of the Quanterra QC Program may be superseded by these requirements.

Elements of the Quanterra QC Program

Where other clear regulatory guidance, contract specifications, or client requirements are not available, the Quanterra QC Program provides guidance for Batch QC requirements. The Quality Control Batch is a set of up to 20 field samples of similar matrix, which are processed together under the same conditions, within the same time frame. Included in each Quality Control Batch is a Method Blank, Laboratory Control Sample, and Matrix Spike Duplicate. For methods that require independent sample preparation prior to analysis, the QC Batch is defined at the preparation stage. For methods that do not require independent sample preparation, the QC Batch is defined at the instrument. The QC Batch Number is provided on each result page in association with the parameter(s) presented, and may be used to cross-reference sample results with the associated QC data.

Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interference and background contamination levels associated with each applicable analytical method. Method blanks include all aspects of actual laboratory procedures involving sample preparation and analysis, substituting analyte-free water or solid for the actual sample. Under normal circumstances, the Method Blank should not exhibit analytes of interest above the reported detection limit. Due to the presence of some analytes in a typical laboratory setting, the following common laboratory contaminants are exceptions to this rule, provided they are not present in the method blank at greater than five times the reporting limit.

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

A method blank is performed with each analytical batch. A minimum of 5% of all laboratory analyses are method blanks.

Laboratory Control Sample (LCS) Evaluations

Known concentrations of designated matrix spike (target analyte) compounds are added to a method blank prior to extraction and analysis. Percent recovery determinations of individual target analytes in the LCS demonstrate the laboratory's method performance for the QC Batch relative to these target analytes (or other individual components represented by a subset of control analytes). Percent recovery data is displayed alongside acceptance criteria, that is typically derived from laboratory historical data. Failure of a Laboratory Control Sample to meet established recovery criteria for control analytes is cause for corrective actions to occur, which typically includes re-extraction and re-analysis of all samples associated with the QC Batch. An LCS is performed with each analytical batch. A minimum of 5% of all laboratory analyses are laboratory control samples.

Quanterra
Environmental Services

Quanterra Quality Control Program Summary (continued)

Surrogate Spike Recovery Evaluations

For GC and GC/MS analyses, known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added to sample fractions prior to sample extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is one indication of the overall method efficiency for the individual sample. The surrogate spike recovery data is displayed alongside acceptance limits at the bottom of each applicable analytical result report page. Where sufficient laboratory-generated data does not yet exist to determine appropriate control limits, advisory limits may be enacted until sufficient data is collected to allow implementation of control limits.

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

In conjunction with the analysis of a client-provided field sample, a known concentration of designated matrix spike compounds (target analytes) are added to two aliquots of the actual sample. Percent recovery determinations are calculated from both spiked aliquots, using target analyte concentrations already present in the actual sample as a baseline. The percent recovery determinations indicate the accuracy of the method specific to the target analytes (or other individual components represented by a subset of control analytes) in the individual sample matrix. Comparison of the percent recoveries in the two spiked aliquots yields a relative percent difference (RPD). Percent recovery and relative percent difference data is displayed alongside historical criteria, that may be used to judge individual sample matrix effects for specific analytes. MS/MSD data is evaluated by the laboratory with respect to the individual sample matrix. In cases where MS/MSD data indicate sample method performance outside of historical criteria, the laboratory control sample results are referenced to ensure acceptable method performance by the laboratory for the sample batch. For analyses which are inappropriately suited for matrix spikes (e.g. pH), non-spiked duplicate analyses are performed to generate precision data. Matrix spike duplicates are typically performed on at least one sample within each analytical batch. A minimum of 10% of all laboratory analyses are matrix spikes or duplicates.

Corrective Action Evaluations

The goal of the Quanterra Quality Control Program is to generate data that demonstrates process control, and allows for client usability of data. Where the analytical process is demonstrated to vary from established criteria, or client requirements have not been met, data evaluation resulting in corrective action may be required. Corrective action may include re-preparation and/or reanalysis of field samples and QC samples. Where appropriate or necessary to allow proper interpretation of results presented in the final report, details of corrective actions taken during the laboratory processing of samples are presented as a case narrative at the front of the report. Alternatively, routine corrective action, such as reanalysis, may be footnoted on individual sample result pages.

Analytical Result Qualifier Flags

Where applicable , data qualifiers may be appended to analytical results in order to allow for proper interpretation of the result presented. Typically, the presence of data qualifier flag on an analytical result page is accompanied by a footnote explaining the qualifier. Common data qualifiers include, but are no limited to the following:

J -indicates an estimated concentration is reported due to method limitations such as matrix interference or instrumental detection limitations.

B -indicates the presence of a particular analyte in the associated laboratory method blank.

DIL -indicates percent recovery determination was not possible due to dilution associated with the sample matrix conditions or high target analyte concentrations.

X -indicates internal standards used for a GC or GC/MS analysis did not meet established criteria, typically due to a sample matrix effect.

E -indicates an estimated concentration is reported due to analyte response beyond the established instrumental calibration range, typically due to presence of a wide range of target analyte concentrations.

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5D150015

METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE
		BATCH:5108113			
Arsenic	ND	0.25	mg/kg	SW846 6010A	4/19- 4/21/95
Cadmium	ND	0.50	mg/kg	SW846 6010A	4/19- 4/21/95
Chromium	ND	2.5	mg/kg	SW846 6010A	4/19- 4/21/95
Lead	ND	2.5	mg/kg	SW846 6010A	4/19- 4/21/95

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5D260000-043

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons,	ND	5.0	mg/kg	4/26- 4/27/95	5116043

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental
Services

CHECK SAMPLE REPORT

LAB #: B5D150015

METALS

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS	PREPARATION - ANALYSIS DATE
	BATCH:5108113		
Arsenic	92	(80-120)	4/19- 4/21/95
Cadmium	97	(71-110)	4/19- 4/21/95
Chromium	96	(80-110)	4/19- 4/21/95
Lead	94	(72-112)	4/19- 4/21/95

Quanterra
Environmental
Services

CHECK SAMPLE REPORT

LAB #: B5D150015

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

COMPOUND	SPIKE PERCENT RECOVERY	LIMITS	PREPARATION - ANALYSIS DATE	Q/C BATCH
Petroleum Hydrocarbons, Total Recoverable	96	(65-114)	4/26- 4/27/95	5116043

Quanterra
Environmental
Services

SAMPLE - SAMPLE DUP

WO #: A41QR

LAB #: B5D150015-001
MATRIX: SOLID

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

PARAMETER	RESULT SMP	DUP	RPD	RPD LIMIT	EXTRACTION / ANALYSIS DATE	QC BATCH
Solids, Total (TS)	83.2	83.1	0.2	(0-20)	4/21/95	5111092

Quanterra Environmental Services, Tampa

Sample Shipper Evaluation and Receipt Form 7527.34

Client: AGB Project Name/Number: MADEP PENSACOLA

Samples Received by: [signature] Date Received: 4/14/95

Signature

Sample Evaluation Form by: [signature]

Signature

Type of shipping containers samples received in:

Quanterra cooler: X Client cooler: _____

Quanterra shipper _____ Box _____ Other _____

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

		Yes	No
1)	Were custody seals on shipping container(s) intact?	X	
2)	Were custody papers properly included with samples?	✓	
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 preservativion techniques indicated?		
8)	Were samples received within adequate holding times?		
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	X	
11)	Were samples accepted into the laboratory? (If "No", see comments)	X	

Cooler # _____ Temp 5.0 C Cooler # _____ Temp. _____ C

Comments: _____

_____

_____

Interlaboratory Chain of Custody

BRECKENRIDGE PKWY., STE. H
TAMPA, FL 33610
PHONE (813) 621-0784 FAX (813) 623-6021

Quanterra Environmental Services

CLIENT CODE _____

QUOTE / SAR NUMBER _____

Chain-of Custody Record

78282

PROJ. NO. 7527.34 | PROJECT NAME/LOCATION VST SITES, NADEP PENSACOLA

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB.	STATION LOCATION	NO. OF CONTAINERS	PARAMETER: TRPH	PARAMETER: PAHs	REMARKS
	4-13-95	1032	X		05B01002	1	✓	✓	

Relinquished by: (Signature) — Date / Time: 4-13-95 1200 — Received by: (Signature)

Relinquished by: (Signature) — Date / Time — Received by: (Signature)

Relinquished by: (Signature) — Date / Time — Received for Laboratory by: (Signature) — Date / Time: 4/13/95 1300

Remarks: STANDARD TURNAROUND

Distribution Original Accompanies Shipment. Copy returned with Report.

ORM 004

APPENDIX D

LABORATORY ANALYTICAL DATA FOR GROUNDWATER

Quanterra Environmental Services

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

813 621-0784 Telephone
813 623-6021 Fax

05

ANALYTICAL REPORT

PROJECT NO. 7527.34

AVGAS PIPELINE AREA

KAREN HARTNETT

ABB ENVIRONMENTAL SERVICES

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

Joanne Anderson
Project Manager

February 15, 1995

Thomas R. Newman
Quality Assurance Manager

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

813 621 0784 Telephone
813 623-6021 Fax

Quanterra
Environmental Services

May 9, 1995

ABB Environmental Services
Attention : John McVoy
2590 Executive Center Circle E.
Tallahassee, FL 32301

Dear Mr. McVoy:

This correspondence is intended as clarification of an analytical report for lot B5C310047 (Project No. 7527.34) submitted by Quanterra Environmental Services Tampa (Quanterra) to ABB Environmental Services (ABB).

On March 31, 1995 samples were received by Quanterra from ABB for the referenced project. At the time the sample analysis request was submitted, tentatively identified compounds (TICs) were not requested by Project Management at Quanterra. The software (Thruput) used to quantitate the data from the analysis by Method 8270A automatically uploaded the TICs to the Quanterra Information Management System (QuanIMS), the system from which the final analytical report is generated. If TICs are not requested by Project Management for a particular sample lot, then the TIC report will not be reviewed as part of the data verification process. As a result, the first report received by ABB for the referenced project included a TIC report that had not been analytically reviewed.

At a later date, the request was received from Project Management at Quanterra to include a TIC report for Method 8270A. Due to this request, TICs that did not meet the guidelines specified in Method 8270A were edited from the report. As a result the second analytical report received by ABB for the referenced project included a TIC report that had been analytically reviewed.

If we can be of any further assistance on this matter, please call Kevin Bull or me at (813) 621-0784.

Sincerely,

Thomas R. Newman
Quality Assurance Manager

TRN/kmb

Enclosures
cc: Randy Grubbs, Laboratory Manager
Joanne Anderson, Project Manager
Peggy Sleevi, Corporate Director of Quality Assurance

CAT50509.DOC

Quanterra
Environmental Services

EXECUTIVE SUMMARY - Detection Highlights

B5B030096

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD
1KZ00101				
Ethylbenzene	1.5	1.0	ug/L	USEPA 602
Xylenes, Total	14	1.0	ug/L	USEPA 602
Petroleum Hydrocarbons Total Recoverable	1.4	1.0	mg/L	MCAWW 418.1
Lead	208	5.0	ug/L	MCAWW 200.7
07Z00101				
Arsenic	9.3	5.0	ug/L	MCAWW 200.7
Lead	541	5.0	ug/L	MCAWW 200.7
05Z00101				
Petroleum Hydrocarbons Total Recoverable	1.3	1.0	mg/L	MCAWW 418.1
Lead	9.3	5.0	ug/L	MCAWW 200.7

Quanterra
Environmental Services

ANALYTICAL METHODS SUMMARY

Parameters	Methods
Ethylene Dibromide by Purge and Trap/ECD	FL-HRS 601-MODIFIED
Volatile Organics	USEPA 601
Volatile Organics	USEPA 602
Volatile Organics	USEPA 624
Semivolatile Organics	USEPA 625
Petroleum Hydrocarbons Total Recoverable	MCAWW 418.1
Arsenic	MCAWW 200.7
Cadmium	MCAWW 200.7
Chromium	MCAWW 200.7
Lead	MCAWW 200.7

References:

FL-HRS Method Developed by the State of Florida Department of Health and Rehabilitative Services Analytical Laboratories.

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

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

Quanterra
Environmental Services

SAMPLE SUMMARY

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

WO #	LABORATORY ID	SAMPLE IDENTIFICATION
A2LEL	B5B030096-001	1KZ00101
A2LEM	B5B030096-002	07Z00101
A2LEN	B5B030096-003	05Z00101
A2LEP	B5B030096-004	TRIP BLANK

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN106
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acrolein	ND	10	USEPA 624	02/08-02/09/95	5040065
Acrylonitrile	ND	10	USEPA 624	02/08-02/09/95	5040065
Benzene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Bromodichloromethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Bromoform	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Bromomethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Carbon tetrachloride	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Chlorobenzene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Dibromochloromethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Chloroethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
2-Chloroethyl vinyl ether	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Chloroform	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Chloromethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,2-Dichlorobenzene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,3-Dichlorobenzene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,4-Dichlorobenzene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,1-Dichloroethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,2-Dichloroethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,1-Dichloroethene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
cis-1,2-Dichloroethene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
trans-1,2-Dichloroethene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,2-Dichloropropane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
cis-1,3-Dichloropropene	ND	1.0	USEPA 624	02/08-02/09/95	5040065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	107	(78 - 130)
Toluene-d8	98	(90 - 109)
Bromofluorobenzene	103	(81 - 117)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN106
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC/MS Volatiles

2 OF 2

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
trans-1,3-Dichloropropene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Ethylbenzene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Trichlorofluoromethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Methylene chloride	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,1,2,2-Tetrachloroethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Tetrachloroethene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Toluene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,1,1-Trichloroethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
1,1,2-Trichloroethane	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Trichloroethene	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Vinyl chloride	ND	1.0	USEPA 624	02/08-02/09/95	5040065
Xylenes, Total	ND	1.0	USEPA 624	02/08-02/09/95	5040065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	107	(78 - 130)
Toluene-d8	98	(90 - 109)
Bromofluorobenzene	103	(81 - 117)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN106
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95
DATE EXTRACTED: 2/08/95
DATE ANALYZED: 2/09/95

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
None		--	5040065

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
None		--	5040065

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN107
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Acenaphthene	ND	10	USEPA 625	02/06-02/09/95	5037115
Acenaphthylene	ND	10	USEPA 625	02/06-02/09/95	5037115
Anthracene	ND	10	USEPA 625	02/06-02/09/95	5037115
Benzidine	ND	50	USEPA 625	02/06-02/09/95	5037115
Benzo(a)anthracene	ND	10	USEPA 625	02/06-02/09/95	5037115
Benzo(b)fluoranthene	ND	10	USEPA 625	02/06-02/09/95	5037115
Benzo(k)fluoranthene	ND	10	USEPA 625	02/06-02/09/95	5037115
Benzo(g,h,i)perylene	ND	10	USEPA 625	02/06-02/09/95	5037115
Benzo(a)pyrene	ND	10	USEPA 625	02/06-02/09/95	5037115
bis(2-Chloroethoxy)methane	ND	10	USEPA 625	02/06-02/09/95	5037115
bis(2-Chloroethyl)ether	ND	10	USEPA 625	02/06-02/09/95	5037115
bis(2-Chloroisopropyl)ether	ND	10	USEPA 625	02/06-02/09/95	5037115
bis(2-Ethylhexyl)phthalate	ND	10	USEPA 625	02/06-02/09/95	50[illegible]
4-Bromophenyl phenyl ether	ND	10	USEPA 625	02/06-02/09/95	5037115
Butyl benzyl phthalate	ND	10	USEPA 625	02/06-02/09/95	5037115
4-Chloro-3-methylphenol	ND	10	USEPA 625	02/06-02/09/95	5037115
2-Chloronaphthalene	ND	10	USEPA 625	02/06-02/09/95	5037115
2-Chlorophenol	ND	10	USEPA 625	02/06-02/09/95	5037115
4-Chlorophenyl phenyl ether	ND	10	USEPA 625	02/06-02/09/95	5037115
Chrysene	ND	10	USEPA 625	02/06-02/09/95	5037115
Dibenz(a,h)anthracene	ND	10	USEPA 625	02/06-02/09/95	5037115
Di-n-butyl phthalate	ND	10	USEPA 625	02/06-02/09/95	5037115
1,2-Dichlorobenzene	ND	10	USEPA 625	02/06-02/09/95	5037115

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	68	(26 - 131)
2-Fluorobiphenyl	67	(27 - 119)
Terphenyl-d14	49	(10 - 165)
2-Fluorophenol	60	(10 - 116)
Phenol-d5	58	(10 - 175)
2,4,6-Tribromophenol	72	(10 - 155)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN107
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC/MS Semi-Volatiles
2 OF 3

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	ND	10	USEPA 625	02/06-02/09/95	5037115
1,4-Dichlorobenzene	ND	10	USEPA 625	02/06-02/09/95	5037115
3,3'-Dichlorobenzidine	ND	50	USEPA 625	02/06-02/09/95	5037115
2,4-Dichlorophenol	ND	10	USEPA 625	02/06-02/09/95	5037115
Diethyl phthalate	ND	10	USEPA 625	02/06-02/09/95	5037115
2,4-Dimethylphenol	ND	10	USEPA 625	02/06-02/09/95	5037115
Dimethyl phthalate	ND	10	USEPA 625	02/06-02/09/95	5037115
Di-n-octyl phthalate	ND	10	USEPA 625	02/06-02/09/95	5037115
4,6-Dinitro-2-methylphenol	ND	50	USEPA 625	02/06-02/09/95	5037115
2,4-Dinitrophenol	ND	50	USEPA 625	02/06-02/09/95	5037115
2,4-Dinitrotoluene	ND	10	USEPA 625	02/06-02/09/95	5037115
2,6-Dinitrotoluene	ND	10	USEPA 625	02/06-02/09/95	5037115
1,2-Diphenylhydrazine	ND	10	USEPA 625	02/06-02/09/95	5037115
Fluoranthene	ND	10	USEPA 625	02/06-02/09/95	5037115
Fluorene	ND	10	USEPA 625	02/06-02/09/95	5037115
Hexachlorobenzene	ND	10	USEPA 625	02/06-02/09/95	5037115
Hexachlorobutadiene	ND	10	USEPA 625	02/06-02/09/95	5037115
Hexachlorocyclopentadiene	ND	10	USEPA 625	02/06-02/09/95	5037115
Hexachloroethane	ND	10	USEPA 625	02/06-02/09/95	5037115
Indeno(1,2,3-cd)pyrene	ND	10	USEPA 625	02/06-02/09/95	5037115
Isophorone	ND	10	USEPA 625	02/06-02/09/95	5037115
Naphthalene	ND	10	USEPA 625	02/06-02/09/95	5037115
Nitrobenzene	ND	10	USEPA 625	02/06-02/09/95	5037115

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	68	(26 - 131)
2-Fluorobiphenyl	67	(27 - 119)
Terphenyl-d14	49	(10 - 165)
2-Fluorophenol	60	(10 - 116)
Phenol-d5	58	(10 - 175)
2,4,6-Tribromophenol	72	(-10 - 155)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN107
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC/MS Semi-Volatiles

3 OF 3

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
2-Nitrophenol	ND	10	USEPA 625	02/06-02/09/95	5037115
4-Nitrophenol	ND	50	USEPA 625	02/06-02/09/95	5037115
N-Nitrosodimethylamine	ND	10	USEPA 625	02/06-02/09/95	5037115
N-Nitrosodi-n-propylamine	ND	10	USEPA 625	02/06-02/09/95	5037115
N-Nitrosodiphenylamine	ND	10	USEPA 625	02/06-02/09/95	5037115
Pentachlorophenol	ND	50	USEPA 625	02/06-02/09/95	5037115
Phenanthrene	ND	10	USEPA 625	02/06-02/09/95	5037115
Phenol	ND	10	USEPA 625	02/06-02/09/95	5037115
Pyrene	ND	10	USEPA 625	02/06-02/09/95	5037115
1,2,4-Trichlorobenzene	ND	10	USEPA 625	02/06-02/09/95	5037115
2,4,6-Trichlorophenol	ND	10	USEPA 625	02/06-02/09/95	5037115

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	68	(26 - 131)
2-Fluorobiphenyl	67	(27 - 119)
Terphenyl-d14	49	(10 - 165)
2-Fluorophenol	60	(10 - 116)
Phenol-d5	58	(10 - 175)
2,4,6-Tribromophenol	72	(10 - 155)

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN107
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95
DATE EXTRACTED: 2/06/95
DATE ANALYZED: 2/09/95

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS
with their estimated concentrations

PARAMETER	RESULT	UNIT	QC BATCH
Maleic hydrazide	5	ug/L	5037115
Cyclopentanecarboxylic acid, 2-amino-	90	ug/L	5037115

OTHER COMPOUNDS

PARAMETER	RESULT	UNIT	QC BATCH
None		--	5037115

Quanterra
Environmental
Services

ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

- - - - - - - - - - - - - - - - - - REQUESTED METALS - - - - - - - - - - - - - - - - - -

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Arsenic	ND	5.0	ug/L	MCAWW 200.7	2/06/95	5037006
Cadmium	ND	5.0	ug/L	MCAWW 200.7	2/06/95	5037006
Chromium	ND	50.0	ug/L	MCAWW 200.7	2/06/95	5037006
Lead	9.3	5.0	ug/L	MCAWW 200.7	2/06/95	5037006

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

Quanterra
Environmental
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ABB ENVIRONMENTAL SERVICES

05Z00101

WO #: A2LEN
LAB #: B5B030096-003
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons Total Recoverable	1.3	1.0	mg/L	MCAWW 418.1	2/08/95	5039119

NOTE: AS RECEIVED

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLANK

WO #: A2LEP101
LAB #: B5B030096-004
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC Volatiles

1 OF 2

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Bromodichloromethane	ND	1.0	USEPA 601	02/08/95	5039029
Bromoform	ND	1.0	USEPA 601	02/08/95	5039029
Bromomethane	ND	1.0	USEPA 601	02/08/95	5039029
Carbon tetrachloride	ND	1.0	USEPA 601	02/08/95	5039029
Chlorobenzene	ND	1.0	USEPA 601	02/08/95	5039029
Dibromochloromethane	ND	1.0	USEPA 601	02/08/95	5039029
Chloroethane	ND	1.0	USEPA 601	02/08/95	5039029
2-Chloroethyl vinyl ether	ND	1.0	USEPA 601	02/08/95	5039029
Chloroform	ND	1.0	USEPA 601	02/08/95	5039029
Chloromethane	ND	1.0	USEPA 601	02/08/95	5039029
1,2-Dichlorobenzene	ND	1.0	USEPA 601	02/08/95	5039029
1,3-Dichlorobenzene	ND	1.0	USEPA 601	02/08/95	5039029
1,4-Dichlorobenzene	ND	1.0	USEPA 601	02/08/95	503.
Dichlorodifluoromethane	ND	1.0	USEPA 601	02/08/95	5039029
1,1-Dichloroethane	ND	1.0	USEPA 601	02/08/95	5039029
1,2-Dichloroethane	ND	1.0	USEPA 601	02/08/95	5039029
1,1-Dichloroethene	ND	1.0	USEPA 601	02/08/95	5039029
cis-1,2-Dichloroethene	ND	1.0	USEPA 601	02/08/95	5039029
trans-1,2-Dichloroethene	ND	1.0	USEPA 601	02/08/95	5039029
1,2-Dichloropropane	ND	1.0	USEPA 601	02/08/95	5039029
cis-1,3-Dichloropropene	ND	1.0	USEPA 601	02/08/95	5039029
trans-1,3-Dichloropropene	ND	1.0	USEPA 601	02/08/95	5039029
Trichlorofluoromethane	ND	1.0	USEPA 601	02/08/95	5039029

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

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLANK

WO #: A2LEP101
LAB #: B5B030096-004
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC Volatiles

2 OF 2

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Methylene chloride	ND	1.0	USEPA 601	02/08/95	5039029
1,1,2,2-Tetrachloroethane	ND	1.0	USEPA 601	02/08/95	5039029
Tetrachloroethene	ND	1.0	USEPA 601	02/08/95	5039029
1,1,1-Trichloroethane	ND	1.0	USEPA 601	02/08/95	5039029
1,1,2-Trichloroethane	ND	1.0	USEPA 601	02/08/95	5039029
Trichloroethene	ND	1.0	USEPA 601	02/08/95	5039029
Vinyl chloride	ND	1.0	USEPA 601	02/08/95	5039029

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

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

Quanterra
Environmental Services

ABB ENVIRONMENTAL SERVICES

TRIP BLANK

WO #: A2LEP102
LAB #: B5B030096-004
MATRIX: WATER

DATE SAMPLED: 2/02/95
DATE RECEIVED: 2/03/95

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	METHOD	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	1.0	USEPA 602	02/08/95	5039030
Chlorobenzene	ND	1.0	USEPA 602	02/08/95	5039030
1,2-Dichlorobenzene	ND	1.0	USEPA 602	02/08/95	5039030
1,3-Dichlorobenzene	ND	1.0	USEPA 602	02/08/95	5039030
1,4-Dichlorobenzene	ND	1.0	USEPA 602	02/08/95	5039030
Ethylbenzene	ND	1.0	USEPA 602	02/08/95	5039030
Toluene	ND	1.0	USEPA 602	02/08/95	5039030
Xylenes, Total	ND	1.0	USEPA 602	02/08/95	5039030
Methyl tert-butyl ether	ND	1.0	USEPA 602	02/08/95	5039030

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Trifluorotoluene	97	(73 - 131)

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

Quanterra
Environmental
Services

QUALITY CONTROL SECTION

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

Quanterra
Environmental
Services

QUALITY ASSURANCE / QUALITY CONTROL
PROGRAM SUMMARY

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

Surrogate Spike Recovery Evaluations

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

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

Laboratory Analytical Method Blank Evaluations

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

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

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

Laboratory Analytical Method Check Sample Evaluations

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

Quanterra
Environmental Services

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

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

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

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

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

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

Analytical Result Qualifiers

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

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

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

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

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B080000-029

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
cis-1,2-Dichloroethene	ND	1.0	2/08/95	5039029
Bromodichloromethane	ND	1.0	2/08/95	5039029
Bromoform	ND	1.0	2/08/95	5039029
Bromomethane	ND	1.0	2/08/95	5039029
Carbon tetrachloride	ND	1.0	2/08/95	5039029
Chlorobenzene	ND	1.0	2/08/95	5039029
Dibromochloromethane	ND	1.0	2/08/95	5039029
Chloroethane	ND	1.0	2/08/95	5039029
2-Chloroethyl vinyl ether	ND	1.0	2/08/95	5039029
Chloroform	ND	1.0	2/08/95	5039029
Chloromethane	ND	1.0	2/08/95	5039029
1,2-Dichlorobenzene	ND	1.0	2/08/95	5039029
1,3-Dichlorobenzene	ND	1.0	2/08/95	5039
1,4-Dichlorobenzene	ND	1.0	2/08/95	5039029
Dichlorodifluoromethane	ND	1.0	2/08/95	5039029
1,1-Dichloroethane	ND	1.0	2/08/95	5039029
1,2-Dichloroethane	ND	1.0	2/08/95	5039029
1,1-Dichloroethene	ND	1.0	2/08/95	5039029
trans-1,2-Dichloroethene	ND	1.0	2/08/95	5039029
1,2-Dichloropropane	ND	1.0	2/08/95	5039029
cis-1,3-Dichloropropene	ND	1.0	2/08/95	5039029
trans-1,3-Dichloropropene	ND	1.0	2/08/95	5039029
Trichlorofluoromethane	ND	1.0	2/08/95	5039029
Methylene chloride	ND	1.0	2/08/95	5039029
1,1,2,2-Tetrachloroethane	ND	1.0	2/08/95	5039029
SURROGATE RECOVERY	%	ACCEPTABLE LIMITS		
Bromochloromethane	92	(78 - 122)		

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B080000-029

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Tetrachloroethene	ND	1.0	2/08/95	5039029
1,1,1-Trichloroethane	ND	1.0	2/08/95	5039029
1,1,2-Trichloroethane	ND	1.0	2/08/95	5039029
Trichloroethene	ND	1.0	2/08/95	5039029
Vinyl chloride	ND	1.0	2/08/95	5039029

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromochloromethane	92	(78 - 122)

NOTE:

ND (NONE DETECTED)

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B080000-030

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
1,2-Dichlorobenzene	ND	1.0	2/08/95	5039030
1,3-Dichlorobenzene	ND	1.0	2/08/95	5039030
1,4-Dichlorobenzene	ND	1.0	2/08/95	5039030
Benzene	ND	1.0	2/08/95	5039030
Chlorobenzene	ND	1.0	2/08/95	5039030
Ethylbenzene	ND	1.0	2/08/95	5039030
Toluene	ND	1.0	2/08/95	5039030
Xylenes, Total	ND	1.0	2/08/95	5039030
Methyl tert-butyl ether	ND	1.0	2/08/95	5039030

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

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B090000-064

GC Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Ethylene dibromide	ND	0.020	2/08/95	5040064
Ethylene dibromide	ND	0.0020	2/08/95	5040064

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Bromoform	101	(41 - 152)

NOTE:

ND (NONE DETECTED)

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B090000-065

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Acrolein	ND	10	2/08/95	5040065
Acrylonitrile	ND	10	2/08/95	5040065
Benzene	ND	1.0	2/08/95	5040065
Bromodichloromethane	ND	1.0	2/08/95	5040065
Bromoform	ND	1.0	2/08/95	5040065
Bromomethane	ND	1.0	2/08/95	5040065
Carbon tetrachloride	ND	1.0	2/08/95	5040065
Chlorobenzene	ND	1.0	2/08/95	5040065
Dibromochloromethane	ND	1.0	2/08/95	5040065
Chloroethane	ND	1.0	2/08/95	5040065
2-Chloroethyl vinyl ether	ND	1.0	2/08/95	5040065
Chloroform	ND	1.0	2/08/95	5040065
Chloromethane	ND	1.0	2/08/95	5040065
1,2-Dichlorobenzene	ND	1.0	2/08/95	5040065
1,3-Dichlorobenzene	ND	1.0	2/08/95	5040065
1,4-Dichlorobenzene	ND	1.0	2/08/95	5040065
1,1-Dichloroethane	ND	1.0	2/08/95	5040065
1,2-Dichloroethane	ND	1.0	2/08/95	5040065
1,1-Dichloroethene	ND	1.0	2/08/95	5040065
cis-1,2-Dichloroethene	ND	1.0	2/08/95	5040065
trans-1,2-Dichloroethene	ND	1.0	2/08/95	5040065
1,2-Dichloropropane	ND	1.0	2/08/95	5040065
cis-1,3-Dichloropropene	ND	1.0	2/08/95	5040065
trans-1,3-Dichloropropene	ND	1.0	2/08/95	5040065
Ethylbenzene	ND	1.0	2/08/95	5040065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	106	(78 - 130)
Toluene-d8	99	(90 - 109)
Bromofluorobenzene	105	(81 - 117)

NOTE:

ND (NONE DETECTED)

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B090000-065

GC/MS Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Trichlorofluoromethane	ND	1.0	2/08/95	5040065
Methylene chloride	ND	1.0	2/08/95	5040065
1,1,2,2-Tetrachloroethane	ND	1.0	2/08/95	5040065
Tetrachloroethene	ND	1.0	2/08/95	5040065
Toluene	ND	1.0	2/08/95	5040065
1,1,1-Trichloroethane	ND	1.0	2/08/95	5040065
1,1,2-Trichloroethane	ND	1.0	2/08/95	5040065
Trichloroethene	ND	1.0	2/08/95	5040065
Vinyl chloride	ND	1.0	2/08/95	5040065
Xylenes, Total	ND	1.0	2/08/95	5040065

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	106	(78 - 130)
Toluene-d8	99	(90 - 109)
Bromofluorobenzene	105	(81 - 117)

NOTE:

ND (NONE DETECTED)

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B060000-115

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
Benzidine	ND	50	2/06- 2/09/95	5037115
1,2-Diphenylhydrazine	ND	10	2/06- 2/09/95	5037115
N-Nitrosodimethylamine	ND	10	2/06- 2/09/95	5037115
Acenaphthene	ND	10	2/06- 2/09/95	5037115
Acenaphthylene	ND	10	2/06- 2/09/95	5037115
Anthracene	ND	10	2/06- 2/09/95	5037115
Benzo(a)anthracene	ND	10	2/06- 2/09/95	5037115
Benzo(b)fluoranthene	ND	10	2/06- 2/09/95	5037115
Benzo(k)fluoranthene	ND	10	2/06- 2/09/95	5037115
Benzo(g,h,i)perylene	ND	10	2/06- 2/09/95	5037115
Benzo(a)pyrene	ND	10	2/06- 2/09/95	5037115
bis(2-Chloroethoxy)methane	ND	10	2/06- 2/09/95	5037115
bis(2-Chloroethyl)ether	ND	10	2/06- 2/09/95	5037.
bis(2-Chloroisopropyl)ether	ND	10	2/06- 2/09/95	5037115
bis(2-Ethylhexyl)phthalate	ND	10	2/06- 2/09/95	5037115
4-Bromophenyl phenyl ether	ND	10	2/06- 2/09/95	5037115
Butyl benzyl phthalate	ND	10	2/06- 2/09/95	5037115
4-Chloro-3-methylphenol	ND	10	2/06- 2/09/95	5037115
2-Chloronaphthalene	ND	10	2/06- 2/09/95	5037115
2-Chlorophenol	ND	10	2/06- 2/09/95	5037115
4-Chlorophenyl phenyl ether	ND	10	2/06- 2/09/95	5037115
Chrysene	ND	10	2/06- 2/09/95	5037115
Dibenz(a,h)anthracene	ND	10	2/06- 2/09/95	5037115
Di-n-butyl phthalate	ND	10	2/06- 2/09/95	5037115
1,2-Dichlorobenzene	ND	10	2/06- 2/09/95	5037115

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	64	(26 - 131)
2-Fluorobiphenyl	64	(27 - 119)
Terphenyl-d14	84	(10 - 165)
2-Fluorophenol	64	(10 - 116)
Phenol-d5	66	(10 - 175)
2,4,6-Tribromophenol	71	(10 - 155)

NOTE:

ND (NONE DETECTED)

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B060000-115

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	ND	10	2/06- 2/09/95	5037115
1,4-Dichlorobenzene	ND	10	2/06- 2/09/95	5037115
3,3'-Dichlorobenzidine	ND	50	2/06- 2/09/95	5037115
2,4-Dichlorophenol	ND	10	2/06- 2/09/95	5037115
Diethyl phthalate	ND	10	2/06- 2/09/95	5037115
2,4-Dimethylphenol	ND	10	2/06- 2/09/95	5037115
Dimethyl phthalate	ND	10	2/06- 2/09/95	5037115
Di-n-octyl phthalate	ND	10	2/06- 2/09/95	5037115
4,6-Dinitro-2-methylphenol	ND	50	2/06- 2/09/95	5037115
2,4-Dinitrophenol	ND	50	2/06- 2/09/95	5037115
2,4-Dinitrotoluene	ND	10	2/06- 2/09/95	5037115
2,6-Dinitrotoluene	ND	10	2/06- 2/09/95	5037115
Fluoranthene	ND	10	2/06- 2/09/95	5037115
Fluorene	ND	10	2/06- 2/09/95	5037115
Hexachlorobenzene	ND	10	2/06- 2/09/95	5037115
Hexachlorobutadiene	ND	10	2/06- 2/09/95	5037115
Hexachlorocyclopentadiene	ND	10	2/06- 2/09/95	5037115
Hexachloroethane	ND	10	2/06- 2/09/95	5037115
Indeno(1,2,3-cd)pyrene	ND	10	2/06- 2/09/95	5037115
Isophorone	ND	10	2/06- 2/09/95	5037115
Naphthalene	ND	10	2/06- 2/09/95	5037115
Nitrobenzene	ND	10	2/06- 2/09/95	5037115
2-Nitrophenol	ND	10	2/06- 2/09/95	5037115
4-Nitrophenol	ND	50	2/06- 2/09/95	5037115

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	64	(26 - 131)
2-Fluorobiphenyl	64	(27 - 119)
Terphenyl-d14	84	(10 - 165)
2-Fluorophenol	64	(10 - 116)
Phenol-d5	66	(10 - 175)
2,4,6-Tribromophenol	71	(10 - 155)

NOTE:

ND (NONE DETECTED)

Quanterra Environmental Services

INTRA-LAB BLANK REPORT

LAB #: B5B060000-115

GC/MS Semi-Volatiles

PARAMETER	RESULT (ug/L)	REPORTING LIMIT	PREPARATION - ANALYSIS DATE	QC BATCH
N-Nitrosodi-n-propylamine	ND	10	2/06- 2/09/95	5037115
N-Nitrosodiphenylamine	ND	10	2/06- 2/09/95	5037115
Pentachlorophenol	ND	50	2/06- 2/09/95	5037115
Phenanthrene	ND	10	2/06- 2/09/95	5037115
Phenol	ND	10	2/06- 2/09/95	5037115
Pyrene	ND	10	2/06- 2/09/95	5037115
1,2,4-Trichlorobenzene	ND	10	2/06- 2/09/95	5037115
2,4,6-Trichlorophenol	ND	10	2/06- 2/09/95	5037115

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	64	(26 - 131)
2-Fluorobiphenyl	64	(27 - 119)
Terphenyl-d14	84	(10 - 165)
2-Fluorophenol	64	(10 - 116)
Phenol-d5	66	(10 - 175)
2,4,6-Tribromophenol	71	(10 - 155)

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental
Services

INTRA-LAB BLANK REPORT

LAB #: B5B030096

METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE
		BATCH:5037006			
Arsenic	ND	5.0	ug/L	MCAWW 200.7	2/06/95
Cadmium	ND	5.0	ug/L	MCAWW 200.7	2/06/95
Chromium	ND	50.0	ug/L	MCAWW 200.7	2/06/95
Lead	ND	5.0	ug/L	MCAWW 200.7	2/06/95

NOTE:

ND NOT DETECTED AT THE STATED REPORTING LIMIT

Quanterra
Environmental
Services

INTRA-LAB BLANK REPORT

LAB #: B5B080000-119

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

PARAMETER	RESULT	REPORTING LIMIT	UNIT	PREPARATION - ANALYSIS DATE	QC BATCH
Petroleum Hydrocarbons	ND	1.0	mg/L	2/08/95	5039119

NOTE:

ND (NONE DETECTED)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 5039029
LAB #: B5B080000-029 C

PREPARATION DATE: 2/08/95
DATE ANALYZED: 2/08/95

GC Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
1,1-Dichloroethene	102	(62-128)
Trichloroethene	107	(70-133)
Chlorobenzene	108	(75-123)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 5039030
LAB #: B5B080000-030 C

PREPARATION DATE: 2/08/95
DATE ANALYZED: 2/08/95

GC Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Benzene	107	(81-122)
Toluene	105	(81-123)
Chlorobenzene	101	(75-121)

Quanterra
Environmental Services

CHECK SAMPLE REPORT

QC BATCH: 5040064
LAB #: B5B090000-064 C

PREPARATION DATE: 2/08/95
DATE ANALYZED: 2/08/95

GC Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Ethylene dibromide	95	(62-129)
1,2-Dibromo-3-chloro-propane	91	(80-120)

Quanterra
Environmental Services

LCS - DCS REPORT

QC BATCH: 5040065
LAB #: B5B090000-065 C

WO #:
PREPARATION DATE: 2/08/95
DATE ANALYZED: 2/08/95

GC/MS Volatiles

COMPOUND	LCS PERCENT RECOVERY	DCS PERCENT RECOVERY	Q/C LIMITS	RPD	RPD LIMITS
1,1-Dichloroethene	90	83	(66-120)	7.6	41
Benzene	87	82	(76-119)	6.4	19
Trichloroethene	89	83	(75-119)	7.2	18
Toluene	90	78	(76-119)	14	18
Chlorobenzene	86	81	(80-121)	6.5	19

Calculations are performed before rounding to avoid round-off errors in calculated results

Quanterra
Environmental Services

LCS - DCS REPORT

QC BATCH: 5037115
LAB #: B5B060000-115 C

WO #:
PREPARATION DATE: 2/06/95
DATE ANALYZED: 2/09/95

- - - - - - - - - - - - - - - - - - GC/MS Semi-Volatiles - - - - - - - - - - - - - - - - - -

COMPOUND	LCS PERCENT RECOVERY	DCS PERCENT RECOVERY	Q/C LIMITS	RPD	RPD LIMITS
Phenol	70	63	(10-113)	11	49
2-Chlorophenol	71	67	(17-108)	6.7	45
1,4-Dichlorobenzene	57	52	(24-133)	8.2	45
N-Nitrosodi-n-propylamine	71	64	(12-139)	11	43
1,2,4-Trichlorobenzene	66	61	(27-119)	7.3	52
4-Chloro-3-methylphenol	74	71	(17-120)	3.8	47
Acenaphthene	75	69	(24-127)	8.3	42
4-Nitrophenol	73	68	(10-138)	7.0	54
2,4-Dinitrotoluene	79	74	(15-138)	7.2	45
Pentachlorophenol	80	76	(10-145)	4.7	47
Pyrene	77	71	(20-137)	7.6	55

Calculations are performed before rounding to avoid round-off errors in calculated results

Quanterra
Environmental Services

CHECK SAMPLE REPORT

LAB #: B5B030096

METALS

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS	PREPARATION - ANALYSIS DATE
	BATCH:5037006		
Arsenic	104	(80-120)	2/06/95
Cadmium	106	(80-120)	2/06/95
Chromium	102	(80-120)	2/06/95
Lead	102	(80-120)	2/06/95

Quanterra
Environmental
Services

CHECK SAMPLE REPORT

LAB #: B5B030096

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

COMPOUND	SPIKE PERCENT RECOVERY	LIMITS	PREPARATION - ANALYSIS DATE	Q/C BATCH
Petroleum Hydrocarbons Total Recoverable	92	(73-122)	2/08/95	5039119

Quanterra
Environmental Services

MATRIX SPIKE REPORT

QC BATCH: 5040064
LAB #: B5B030096-001 S
MATRIX: WATER

WO #: A2LEL
PREPARATION DATE: 2/09/95
DATE ANALYZED: 2/09/95

GC Volatiles

COMPOUND	SPIKE PERCENT RECOVERY	SPIKE/DUP PERCENT RECOVERY	Q/C LIMITS	RPD	RPD LIMIT
Ethylene dibromide	117	102	(81-135)	14	(0-25)

Calculations are performed before rounding to avoid round-off errors in calculated results

Quanterra Environmental Services, Tampa
Sample Shipper Evaluation and Receipt Form

Client: ABB Project Name/Number: AVGAS PIPELINE 7527.34

Samples Received by: [signature] Date Received: 2/3/95
Signature

Sample Evaluation Form by: [signature]
Signature

Type of shipping containers samples received in:

Quanterra cooler: X Client cooler: ____

Quanterra shipper ____ Box ____ Other ____

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

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

Cooler # ____ Temp 3 C Cooler # ____ Temp. ____ C

Comments: ____

WADSWORTH/ALERT LABORATORIES
Sampling, testing, mobile labs

5910 Breckenridge Pkwy.
Suite H
Tampa, FL 33610

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

Chain of Custody Record

Record 1 of 1

2526

Client: ABB

Project Name / Location: Sitton AKGAS PIPELINE ALEA

Sampler(s): HG

Project #: 7527.34

Item #	Date	Time	MATRIX	Sample Location	No. Of CONTAINERS	Parameter: VOC - 601/602	PAH - 625	METALS - As, Ba, Cr, Cd	TRPH -	EDB -	624	LEAD				Remarks
1	2-2-95	1610	H_2O	1KZ00101	8	3			1	3		1				
2		1410		07Z00101	7		2	1	1		3					
3		1540		05Z00101	7		2	1	1		3					
4		—		TRIP BLANK	3	3										
5																
6																
7																
8																
9																
10																
11																

Total Containers: 25

Number of Coolers in Shipment: 1

Bailers: N/A

Report To: K. Hartnett

Additional Comments:

~~One-week turnaround~~

Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
1	1-4	ABB-ES	[signature]	2/3/95	1250
2					
3					
4					
5					
6					

Original Accompanies Shipment

ORIGINAL