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INSTALLATION RESTORATION PROGRAM

INFORMAL TECHNICAL INFORMATION REPORT FOR UNDERGROUND STORAGE TANK SITES

EGLIN AIR FORCE BASE
FLORIDA

ENGINEERING-SCIENCE
ATLANTA, GEORGIA

APRIL 1992

PREPARED FOR

HEADQUARTERS AIR FORCE SYSTEMS COMMAND
COMMAND CIVIL ENGINEER (HQS AFSC/DEV)
ANDREWS AIR FORCE BASE, MARYLAND 20334-5000

UNITED STATES AIR FORCE
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
ENVIRONMENTAL RESTORATION DIVISION (ESR)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

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INSTALLATION RESTORATION PROGRAM

INFORMAL TECHNICAL INFORMATION REPORT FOR UNDERGROUND STORAGE TANK SITES

AIR FORCE SYSTEMS COMMAND
EGLIN AIR FORCE BASE, FLORIDA

APRIL 10, 1992

PREPARED BY

ENGINEERING-SCIENCE, INC.
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SUITE 590
ATLANTA, GEORGIA 30329

USAF CONTRACT NO. F33615-90-D-4014, DELIVERY ORDER NO.4
AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
ENVIRONMENTAL RESTORATION DIVISION (ESR)
2nd Lt. RODNEY HAMMEL

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE (AFCEE)
ENVIRONMENTAL RESTORATION DIVISION (ESR)
BROOKS AIR FORCE BASE, TEXAS 78235-5000

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FIELD	GROUP	SUB-GROUP	Informal Technical Information Report for UST Sites Eglin AFB, Florida

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

As part of an on-going Installation Restoration Program (IRP) at Eglin AFB, Florida ten Underground Storage Tank Sites are being investigated to determine if contamination is present in the groundwater at these sites. Previous remediation efforts at these sites have included removal of the tanks and off-site bioremediation of contaminated soils. This is an Informal Technical Information Report (ITIR) presenting the analytical results and pertinent field data gathered during the investigation effort.

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22a NAME OF RESPONSIBLE INDIVIDUAL USAF HSD 2nd Lt. Rodney Hamel	22b TELEPHONE (Include Area Code) (512) 536-9001 — 22c OFFICE SYMBOL AFCEE/ESR

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NOTICE

This Informal Techncial Information Report (ITIR) has been prepared for the United States Air Force by Engineering-Science, Inc. for the purpose of aiding in the implementation of a final remedial action plan under the Air Force Installation Restoration Program (IRP). As the plan relates to actual or possible releases of potentially hazardous substances, its release prior to an Air Force final decision on remedial action may be in the public's interest. The limited objectives of this plan and the ongoing nature of the IRP, along with the evolving knowledge of site conditions and chemical effects on the environment and health, must be considered when evaluating this plan, since subsequent facts may become known which may make this plan premature or inaccurate. Acceptance of this plan in performance of the contract under which it is prepared does not mean that the United States Air Force adopts the conclusions, recommendations or other views expressed herein, which are those of the contractor only and do not necessarily reflect the official position of the United States Air Force.

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PREFACE

This Informal Technical Information Report presents the analytical results and pertinent data associated with the Underground Storage Tank Sites at Eglin AFB, Florida.

Engineering-Science, Inc., Atlanta, Georgia is contractor for this work. Mr. Ola A. Awosika, P.G., will be the primary responsible scientist performing the work.

The ITIR commences on December 1, 1991 and continues through April 10, 1992.

2nd Lt. Rodney Hamel, United States Air Force AFCEE/ESR, Brooks AFB, Texas is the Technical Program Manager.

Approved:

Contract Program Manager

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EGLIN AFB
UST ITIR

1.0 INTRODUCTION

Engineering-Science (ES) has prepared this letter report to present the results of the environmental sampling work conducted at eight (8) Underground Storage Tank (UST) sites at Eglin AFB, Florida. The locations of these UST sites are depicted in Figures 1 through 8. The results of this investigation are contained in this report and are organized as follows:

- Background
- Sampling Effort
- Analytical Results
- Validated Data
- Recommendation

2.0 BACKGROUND

In 1989, CH2MHill was contracted to compile a comprehensive list of old and inactive USTs at Eglin AFB. In 1990/1991, EA Engineering, Science, and Technology, Inc. were chosen to perform a removal and disposal effort in conjunction with remediation of contaminated soils as necessary. During the course of EA's removal actions, ten UST sites required some degree of soil remediation in accordance with the Federal Department of Environmental Regulation (FDER) criteria. Soil pile bioremediation methods were implemented at an offsite location in six of these cases where OVA readings exceeded 500 ppm or more (Figure 1). Local soils from a borrow pit were used to backfill the holes. The four other sites displayed OVA readings between 80 and 140 ppm during excavation. Soils for these sites were allowed to aerate naturally onsite and were reused as backfill when the OVA readings had diminished. Information pertinent to the tank removal and soil remediation efforts are summarized in Table 1.

The objective of the current investigation at the UST sites is to comply with FDER assessment requirements by determining if contamination is present in the groundwater and to quantify the extent of the contamination if identified. This objective was accomplished through drilling of soil borings, installation of monitoring wells, collection of groundwater samples for chemical analyses, validation of analytical results, and the interpretation and analysis of the validated data.

3.0 GROUNDWATER INVESTIGATION AND RESULTS

3.1 Field Effort

This investigation effort was originally intended for the ten sites requiring remediation as discussed above. However, at the request of the Base, two sites (near Building 501 at Eglin Main and 90219 at Hurlburt Field) were deleted from this investigation due to the presence of monitoring wells onsite from previous groundwater investigations. The field effort at each individual UST site consisted of drilling, installation, development, and sampling of one monitoring well for physical and chemical analyses. The specific location of each well was selected in the field. An attempt was made to locate each well either within the previously excavated area or a nearby downgradient location, depending on site conditions (for example, presence of overhead power lines, communication lines, and trees). An estimate of the flow direction at each site was made based on surrounding topography, proximity of nearby streams, and professional judgment. Boreholes were made to accommodate each well. Soil samples were then collected for evaluation of lithological attributes and any physical evidence of contamination. Organic vapors readings were taken with an HNu during the drilling effort. Drilling records and other information pertinent to the drilling effort are presented in Appendix A. None of the wells installed were surveyed since a potentiometric map for each site could not be developed using data from only one well.

The field work was conducted on February 3 through February 13, 1992 and on February 19 through February 21, 1992. Eight groundwater samples were collected for chemical analysis. All samples were sent to Southwest Laboratory for analyses. The analyses requested included total petroleum hydrocarbons, polynuclear aromatic hydrocarbons, 1,2-dichloroethane, ethylene dibromide, lead, BTEX, and MTBE as required by FDER.

3.2 Analytical Results

A summary of the analytical results are presented in Tables 2 through 7. Tables 3 through 6 are in accordance with reporting requirements in the IRP Handbook.

Ethylene dibromide and 1,2-dichloroethane were not detected in groundwater samples collected from any of the UST sites. Total petroleum hydrocarbons were reported in samples from MW981-1 and MW9990-1 at levels 600 µg/L and 1600 µg/L, respectively. No polynuclear aromatic hydrocarbons, with the exception of fluoranthene in MW3021-1 at 2.0 µg/L, were identified in groundwater samples. Lead in a sample from MW792-1 at a concentration of 142 µg/L exceeded the Florida MCL of 50 µg/L. A low concentration of toluene was reported in the MW3021-1 sample from the BTEX analyses but the second column run did not provide confirmation. All eight samples were free of detectable MTBE contamination. A copy of the original raw data forms provided by the laboratory are included in Appendix B.

3.3 Validated Data

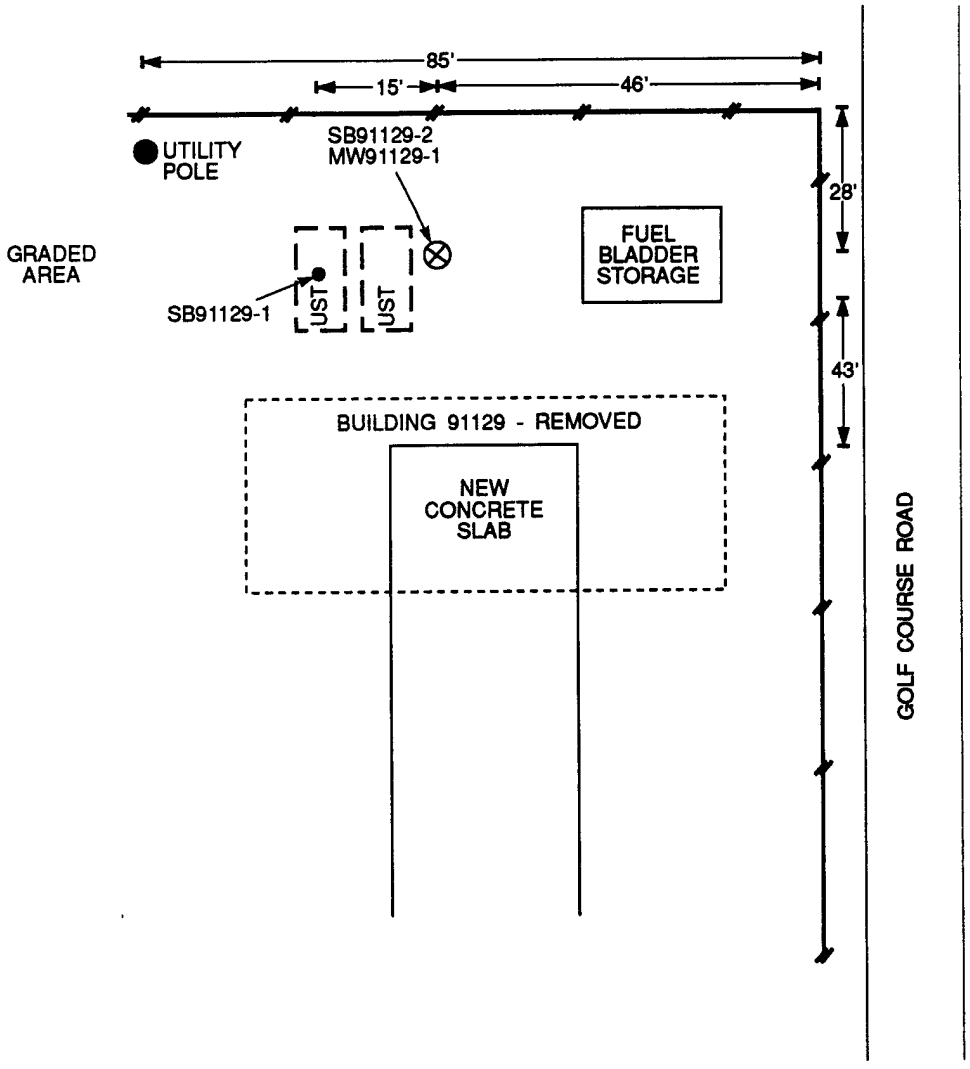
The analytical data, preceded by a comprehensive review of quality assurance and quality control (QA/QC) qualifiers, is presented in Appendix B.

The lead results from the MW4204 sample and the matrix spike are considered estimated due to a low percent recovery. Xylenes at a concentration of 0.7 µg/L were detected in the equipment rinsate UST-ER2 but were not confirmed due to the absence of a second column analyses. With the exception of the sample from MW9990-1, all polynuclear aromatic hydrocarbon analyses exceeded the established holding time criteria for sample extraction. Therefore, these results are estimated at the laboratory method detection limits.

3.4 Recommendation

Based on the sampling results, a second groundwater sample should be collected from MW792-1 to verify the presence of lead contamination. The remaining seven sites did not show sufficient evidence of groundwater contamination attributable to the USTs to warrant further characterization. Therefore, no further investigations are recommended for these sites.

UST SITE
BUILDING 91129 - HURLBURT FIELD
EGLIN AFB, FLORIDA

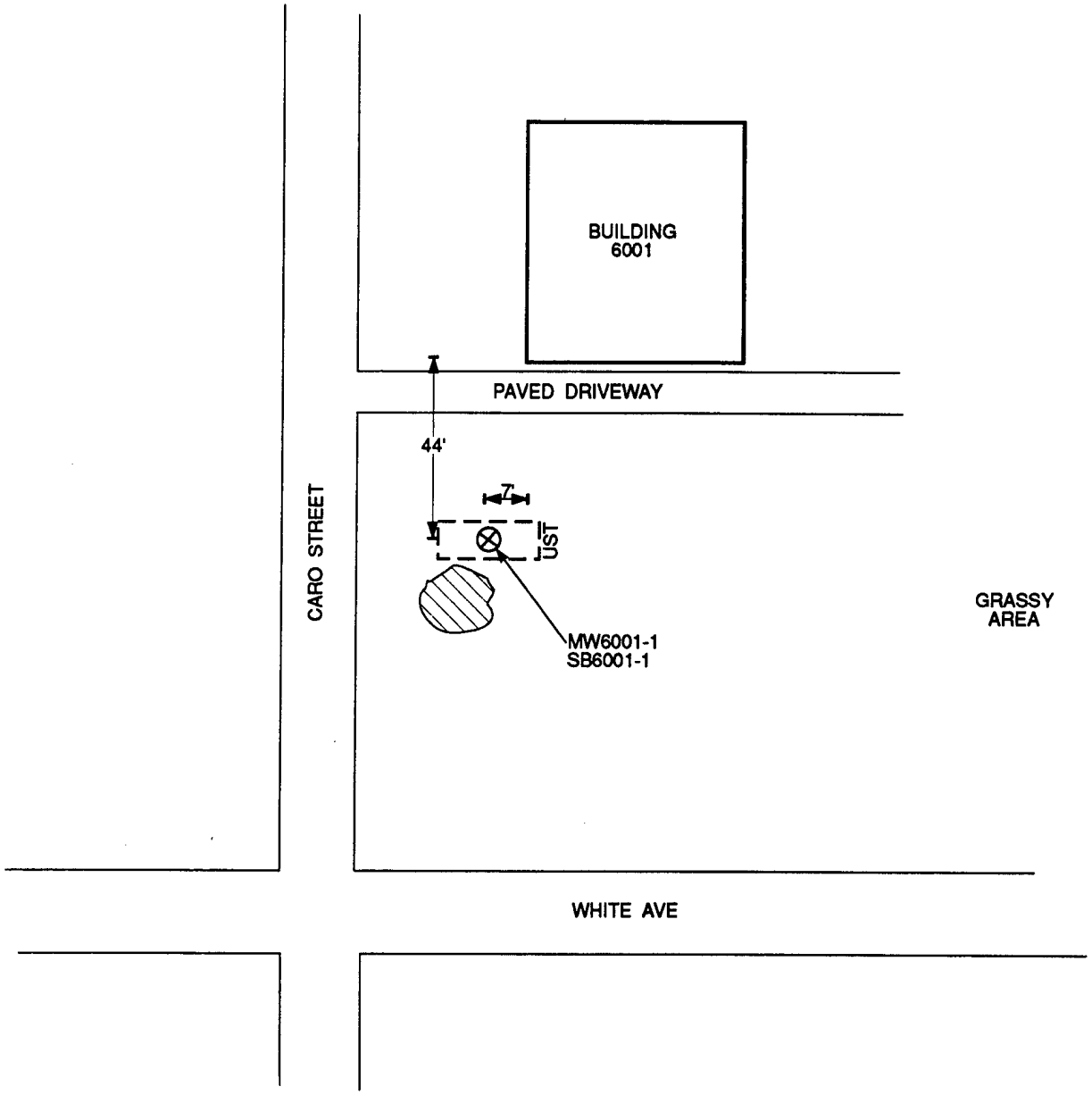


EXPLANATION

- Approximate location of tanks before removal
- Chain-link fence
- Monitoring well
- Soil boring location

NOT TO SCALE

UST SITE
BUILDING 6001 - AUXILIARY FIELD #6
EGLIN AFB, FLORIDA



EXPLANATION

- Approximate location of tanks before removal
- Soil cuttings
- Monitoring well

NOT TO SCALE

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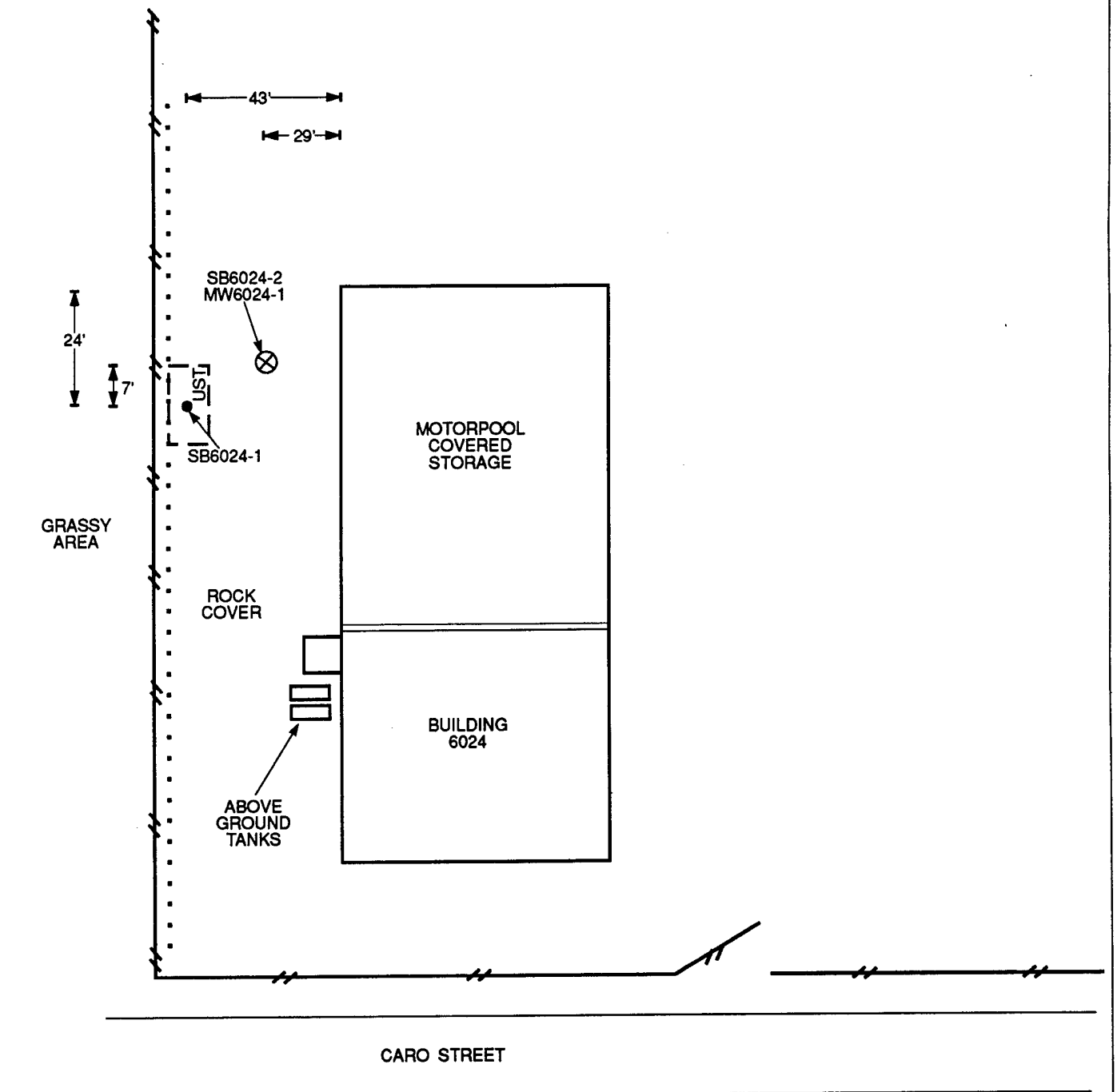
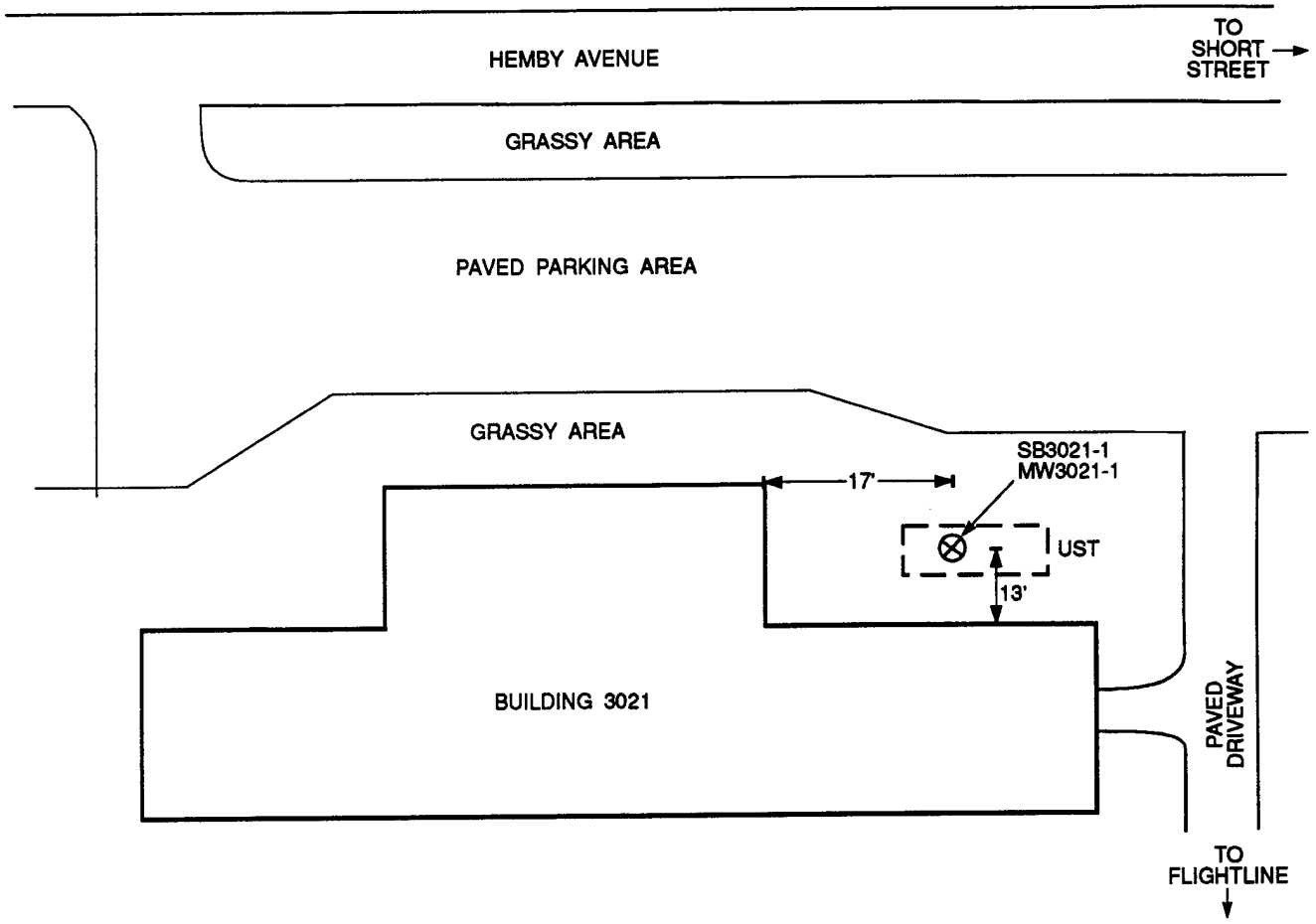
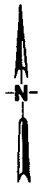
UST SITE
BUILDING 6024 - AUXILIARY FIELD #6
EGLIN AFB, FLORIDA



UST SITE
BUILDING 3021 - AUXILIARY FIELD #3 (Duke)
EGLIN AFB, FLORIDA

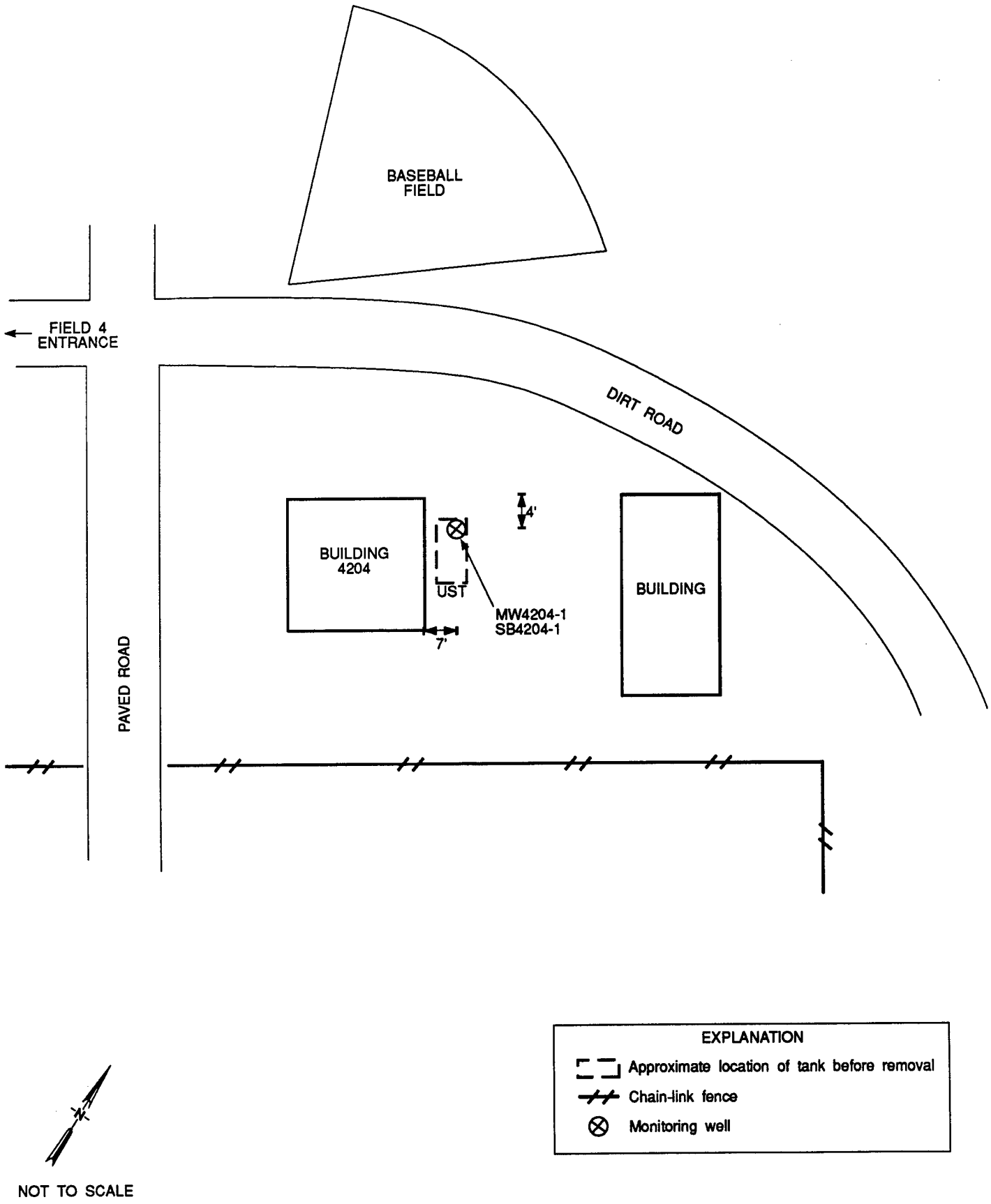




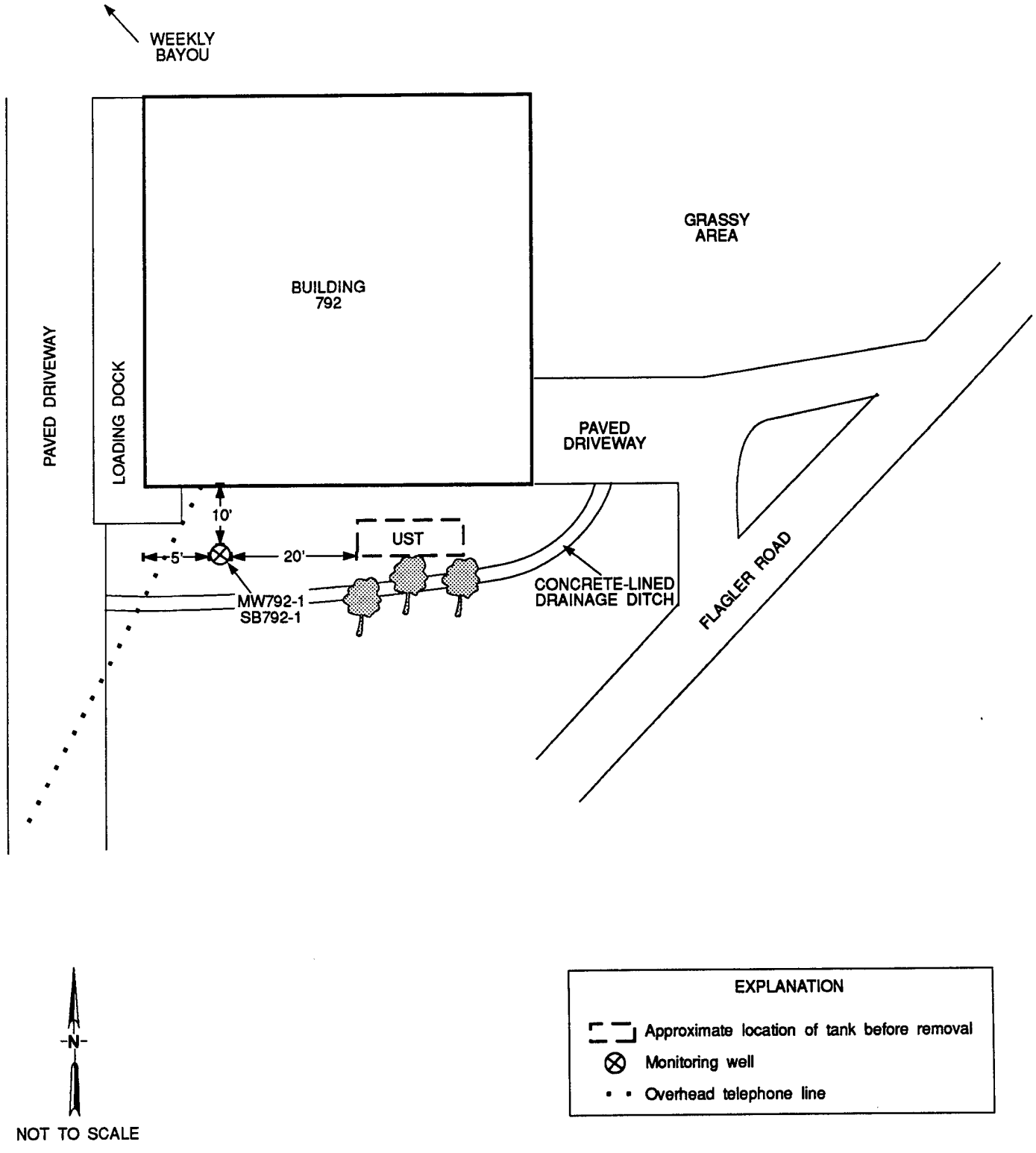
NOT TO SCALE

EXPLANATION
Approximate location of tank before removal
Monitoring well

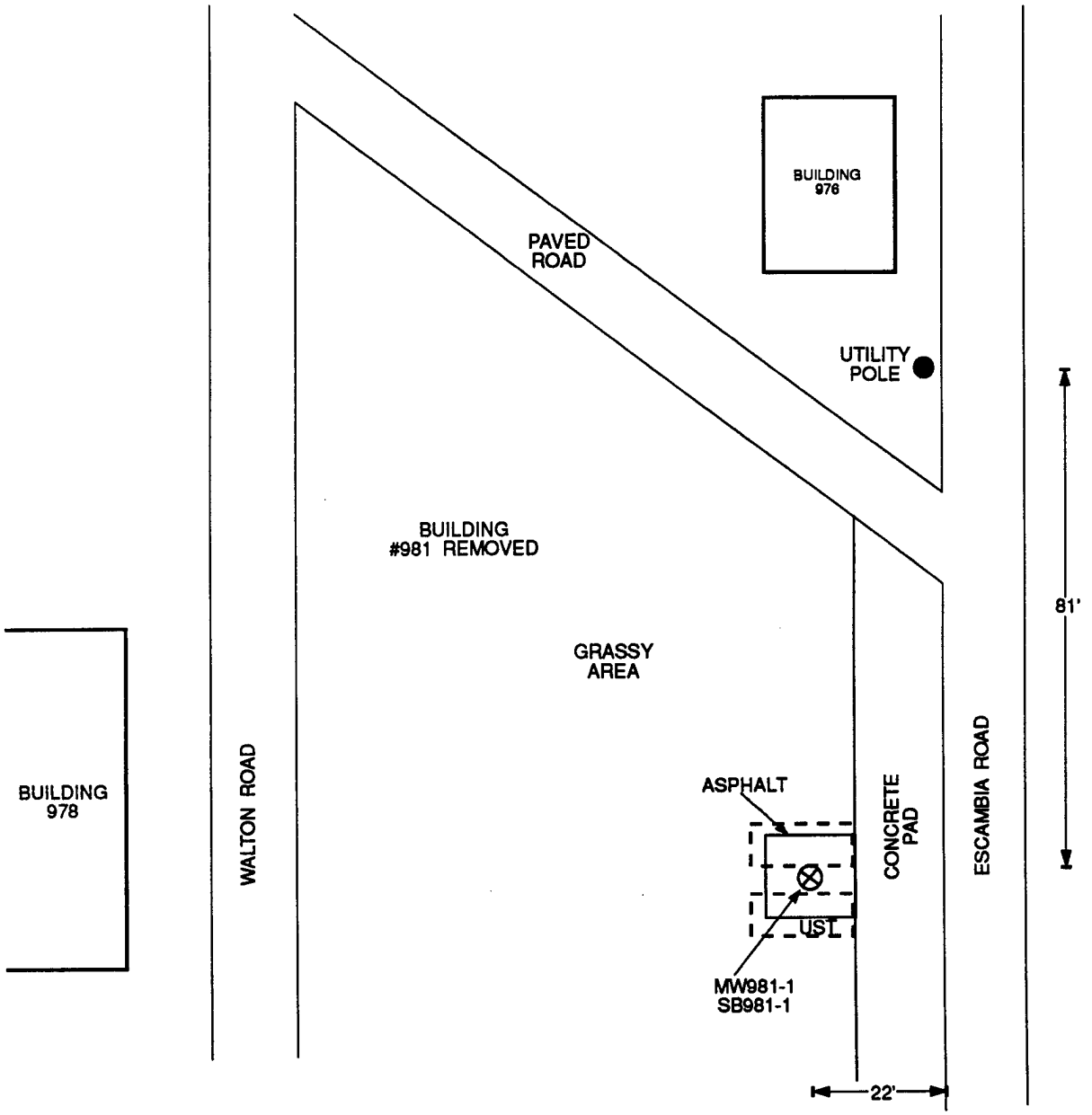
UST SITE
BUILDING 4204 - AUXILIARY FIELD #4
EGLIN AFB, FLORIDA



UST SITE
BUILDING 792 - EGLIN MAIN FIELD
EGLIN AFB, FLORIDA



UST SITE
BUILDING 981 - EGLIN MAIN FIELD
EGLIN AFB, FLORIDA



NOT TO SCALE

EXPLANATION

Approximate location of tank before removal

Monitoring well

UST SITE
BUILDING 9990 - D3 COAST GUARD FACILITY
EGLIN AFB, FLORIDA

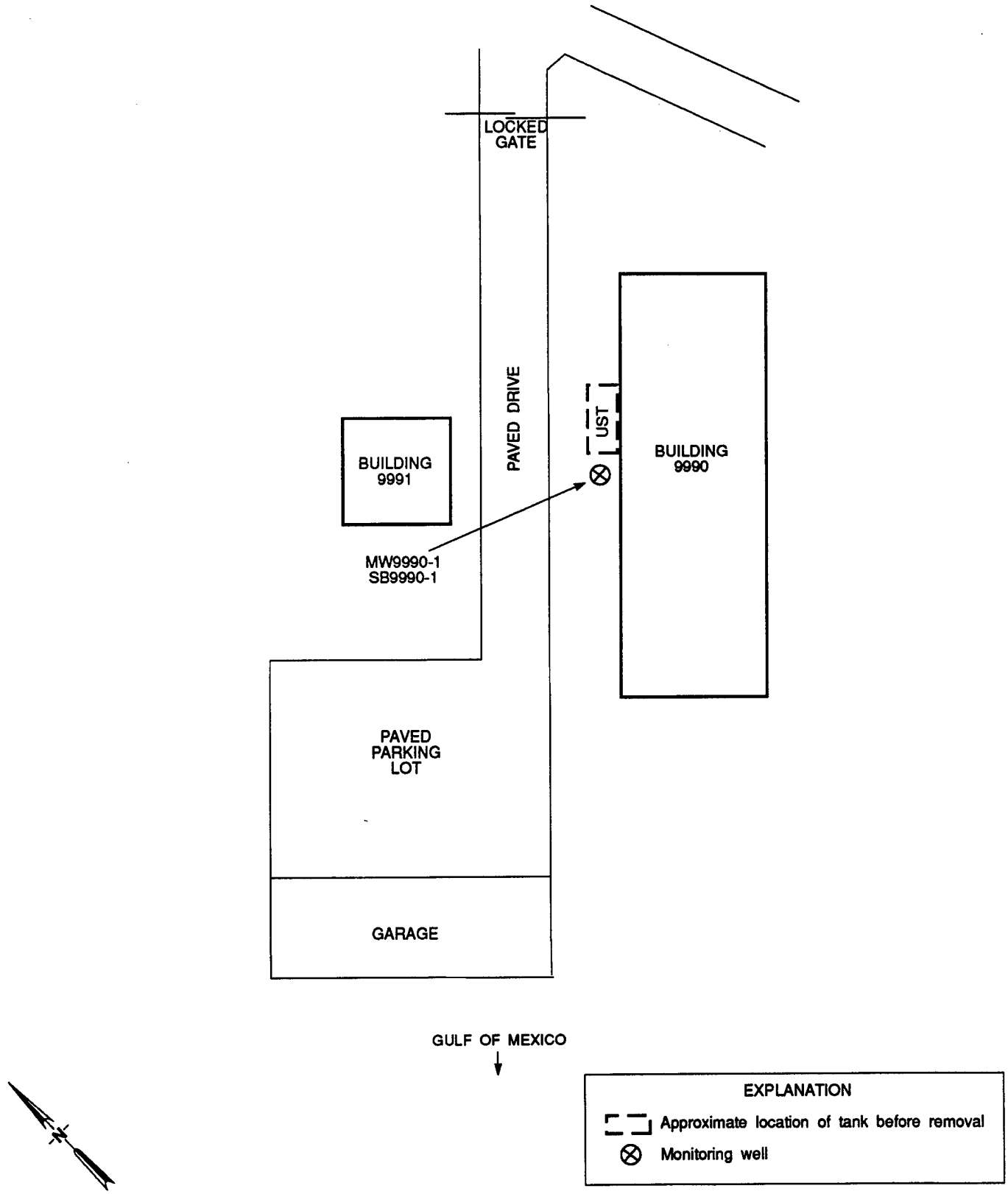


TABLE 1
UNDERGROUND STORAGE TANK REMOVAL DATA
EGLIN AFB

UST Number	Size (gallons)	Storage Use	Maximum OVA Reading during Excavation (ppm)	Maximum OVA Reading during Well Installation (ppm)
91129-2	10,000	Diesel	104	200
6001	1,000	Diesel	1000+	220
6024	500	Diesel	1000+	600
3021	500	Diesel	80	500
4204	55	Gasoline	1000+	280
792	1,000	Diesel	1000+	34
981-2	5,000	Diesel	1000+	600
9990	1,000	Diesel	82	0

TABLE 2
PHYSICAL PARAMETERS
AS MEASURED PRIOR TO SAMPLING
UST SITES
EGLIN AFB

Site Number	Well Number	pH	Conductivity umhos/cm	Temperature °C	Sampling Date
91129	MW91129-1	8.63	850	16.2	92/2/19
6001	MW6001-1	8.95	200	21.9	92/2/19
6024	MW6024-1	7.73	30	21.8	92/2/19
3021	MW3021-1	7.83	30	18.2	92/2/20
4204	MW4204-1	8.16	60	20.7	92/2/19
792	MW792-1	9.30	230	17.0	92/2/20
981	MW981-1	9.10	170	20.4	92/2/20
9990	MW9990-1	8.85	460	15.8	92/2/21

TABLE 3
ANALYTICAL RESULTS
UST SITES
EGLIN AFB

Parameter	Method	Units	ARAR (1) Federal	ARAR (1) State	[Site] [Other Info] [Field #] [Lab #]	UST Water MW3021-1* 8803.01	UST Water MW4204-1 8794.06	UST Water MW4204-1 MSD (2) 8794.07
1,2-Dichloroethane	EPA 601	ug/L	5	3		ND	ND	18.4
Ethylene Dibromide	EPA 504.1	ug/L	0.05	0.02		ND	ND	1.8
Petroleum Hydrocarbons	EPA 418.1	ug/L	-	-		ND	ND	28,000
Lead	EPA 239.2	ug/L	-	50		ND	6.9 J	8.0 J
Benzene	EPA 602	ug/L	5	1		ND	ND	10.1
Toluene	EPA 602	ug/L	1000	-		0.5 JN	ND	9.5
Ethylbenzene	EPA 602	ug/L	700	-		ND	ND	9.8
Xylenes	EPA 602	ug/L	10,000	-		ND	ND	30.4
MTBE	EPA 602	ug/L	-	-		ND	ND	42.4
Polynuclear Aromatic Hydrocarbons Fluoranthene	EPA 610	ug/L	-	-		1.0 UJ 2.0 J	1.0 UJ 1.0 UJ	VARIES 11.5

(1) - Applicable or Relevant and Appropriate Requirements
(2) - Matrix spike or matrix spike duplicate
(3) - Duplicate of MW91129-1
J - Estimated value
N - Tentative identification
ND - Not detected
NA - Not analyzed
* - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
UJ - Due to holding times exceeding criteria for extractions, the method detection limits are estimated and all nondetections are qualified as estimated and presented with the detection limit

TABLE 3 (Cont'd)
ANALYTICAL RESULTS
UST SITES
EGLIN AFB

Parameter	Method	Units	ARAR (1) Federal	ARAR (1) State	[Site] [Other Info] [Field #] [Lab #]	UST Water MW4204-1 MS (2) 8794.08	UST Water MW6001-1 8794.05	UST Water MW6024-1 8794.04
1,2-Dichloroethane	EPA 601	ug/L	5	3		17.2	ND	ND
Ethylene Dibromide	EPA 504.1	ug/L	0.05	0.02		1.62	ND	ND
Petroleum Hydrocarbons	EPA 418.1	ug/L	-	-		25,000	ND	ND
Lead	EPA 239.2	ug/L	-	50		16.5 J	ND	10.2
Benzene	EPA 602	ug/L	5	1		9.9	ND	ND
Toluene	EPA 602	ug/L	1000	-		9.3	ND	ND
Ethylbenzene	EPA 602	ug/L	700	-		9.4	ND	ND
Xylenes	EPA 602	ug/L	10,000	-		29.4	ND	ND
MTBE	EPA 602	ug/L	-	-		44.6	ND	ND
Polynuclear Aromatic Hydrocarbons	EPA 610	ug/L	-	-		VARIES	1.0 UJ	1.0 UJ

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TABLE 3 (Cont'd)
ANALYTICAL RESULTS
UST SITES
EGLIN AFB

Parameter	Method	Units	ARAR (1) Federal	ARAR (1) State	[Site] [Other Info] [Field #] [Lab #]	UST Water MW792-1 8803.04	UST Water MW91129-1 8794.01	UST Water MW91601-1 (3) 8794.02
1,2-Dichloroethane	EPA 601	ug/L	5	3		ND	ND	ND
Ethylene Dibromide	EPA 504.1	ug/L	0.05	0.02		ND	ND	ND
Petroleum Hydrocarbons	EPA 418.1	ug/L	-	-		ND	ND	ND
Lead	EPA 239.2	ug/L	-	50		142	26.6	21.4
Benzene	EPA 602	ug/L	5	1		ND	ND	ND
Toluene	EPA 602	ug/L	1000	-		ND	ND	ND
Ethylbenzene	EPA 602	ug/L	700	-		ND	ND	ND
Xylenes	EPA 602	ug/L	10,000	-		ND	ND	ND
MTBE	EPA 602	ug/L	-	-		ND	ND	ND
Polynuclear Aromatic Hydrocarbons	EPA 610	ug/L	-	-		1.0 UJ	1.0 UJ	1.0 UJ

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TABLE 3 (Cont'd)
ANALYTICAL RESULTS
UST SITES
EGLIN AFB

Parameter	Method	Units	ARAR (1) Federal	ARAR (1) State	[Site] [Other Info] [Field #] [Lab #]	UST Water MW981-1 8803.03	UST Water MW9990-1 8819.01	UST Water UST-ER1 8794.1
1,2-Dichloroethane	EPA 601	ug/L	5	3		ND	ND	ND
Ethylene Dibromide	EPA 504.1	ug/L	0.05	0.02		ND	ND	ND
Petroleum Hydrocarbons	EPA 418.1	ug/L	-	-		600	1600	ND
Lead	EPA 239.2	ug/L	-	50		5.4	ND	ND
Benzene	EPA 602	ug/L	5	1		ND	ND	ND
Toluene	EPA 602	ug/L	1000	-		ND	ND	ND
Ethylbenzene	EPA 602	ug/L	700	-		ND	ND	ND
Xylenes	EPA 602	ug/L	10,000	-		ND	ND	ND
MTBE	EPA 602	ug/L	-	-		ND	ND	ND
Polynuclear Aromatic Hydrocarbons	EPA 610	ug/L	-	-		1.0 UJ	ND	1.0 UJ

(1) - Applicable or Relevant and Appropriate Requirements
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TABLE 3 (Cont'd)
ANALYTICAL RESULTS
UST SITES
EGLIN AFB

Parameter	Method	Units	ARAR (1) Federal	ARAR (1) State	[Site] [Other Info] [Field #] [Lab #]	UST Water UST-ER2 8803.05	UST Water UST-TB1 8794.03
1,2-Dichloroethane	EPA 601	ug/L	5	3		ND	ND
Ethylene Dibromide	EPA 504.1	ug/L	0.05	0.02		ND	ND
Petroleum Hydrocarbons	EPA 418.1	ug/L	-	-		ND	ND*
Lead	EPA 239.2	ug/L	-	50		ND	NA
Benzene	EPA 602	ug/L	5	1		ND	ND
Toluene	EPA 602	ug/L	1000	-		ND	ND
Ethylbenzene	EPA 602	ug/L	700	-		ND	ND
Xylenes	EPA 602	ug/L	10,000	-		0.7 JN	ND
MTBE	EPA 602	ug/L	-	-		ND	ND
Polynuclear Aromatic Hydrocarbons	EPA 610	ug/L	-	-		1.0 UJ	NA

(1) - Applicable or Relevant and Appropriate Requirements
(2) - Matrix spike or matrix spike duplicate
(3) - Duplicate of MW91129-1
* - Analysis performed but not requested
J - Estimated value
N - Tentative identification
ND - Not detected
NA - Not analyzed
UJ - Due to holding times exceeding criteria for extractions, the method detection limits are estimated and all nondetections are qualified as estimated and presented with the detection limit

TABLE 3 (Cont'd)
ANALYTICAL RESULTS
UST SITES
EGLIN AFB

Parameter	Method	Units	ARAR (1) Federal	ARAR (1) State	[Site] [Other Info] [Field #] [Lab #]	UST Water UST-TB2 8803.02	UST Water UST-TB3* 8819.02
1,2-Dichloroethane	EPA 601	ug/L	5	3		ND	ND
Ethylene Dibromide	EPA 504.1	ug/L	0.05	0.02		ND	ND
Petroleum Hydrocarbons	EPA 418.1	ug/L	-	-		NA	NA
Lead	EPA 239.2	ug/L	-	50		NA	NA
Benzene	EPA 602	ug/L	5	1		ND	ND
Toluene	EPA 602	ug/L	1000	-		ND	ND
Ethylbenzene	EPA 602	ug/L	700	-		ND	ND
Xylenes	EPA 602	ug/L	10,000	-		ND	ND
MTBE	EPA 602	ug/L	-	-		ND	ND
Polynuclear Aromatic Hydrocarbons	EPA 610	ug/L	-	-		NA	NA

(1) - Applicable or Relevant and Appropriate Requirements
(2) - Matrix spike or matrix spike duplicate
(3) - Duplicate of MW91129-1
J - Estimated value
N - Tentative identification
ND - Not detected
NA - Not analyzed
* - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis

TABLE 4
SAMPLE IDENTIFICATION CROSS-REFERENCE
UST SITES
EGLIN AFB

Site ID	Field ID	Field Batch ID	Laboratory ID	Lab Batch ID	Sample Description
UST	MW3021-1 (3)	NA	8803.01	8803	Water
UST	MW4204-1	NA	8794.06	8794	Water
UST	MW4204-1 MSD (1)	NA	8794.07	8794	Water
UST	MW4204-1 MS (2)	NA	8794.08	8794	Water
UST	MW6001-1	NA	8794.05	8794	Water
UST	MW6024-1	NA	8794.04	8794	Water
UST	MW792-1	NA	8803.04	8803	Water
UST	MW91129-1	NA	8794.01	8794	Water
UST	MW91601-1 (5)	NA	8794.02	8794	Water
UST	MW981-1	NA	8803.03	8803	Water
UST	MW9990-1	NA	8819.01	8819	Water
UST	UST-ER1	NA	8794.10	8794	Water
UST	UST-ER2	NA	8803.05	8803	Water
UST	UST-TB1	NA	8794.03	8794	Water
UST	UST-TB2	NA	8803.02	8803	Water
UST	UST-TB3 (4)	NA	8819.02	8819	Water

(1) - Matrix spike duplicate
(2) - Matrix spike
(3) - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
(4) - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis
(5) - Duplicate of MW91129-1
NA - Not applicable

AT510/923J189/USTIDCRF.XLS

TABLE 5
SUMMARY OF EXTRACTION AND ANALYSIS DATES
UST SITES
EGLIN AFB

	1,2-Dichloroethane - EPA 601							Ethylene Dibromide - EPA 504.1							
Field ID	Lab ID #	Sampling Date	Extraction Date	Elapsed Time	Analysis Date	Elapsed Time		Lab ID #	Sampling Date	Extraction Date	Elapsed Time		Analysis Date	Elapsed Time	
MW3021-1 (3)	8803.01	2/20/92	NA	NA	2/24/92	4	days	8803.01	2/20/92	2/24/92	4	days	2/25/92	5	days
MW4204-1	8794.06	2/19/92	NA	NA	2/24/92	5	days	8794.06	2/19/92	2/24/92	5	days	2/25/92	6	days
MW4204-1 MSD (1)	8794.07	2/19/92	NA	NA	2/24/92	5	days	8794.07	2/19/92	NA	NA		2/25/92	6	days
MW4204-1 MS (2)	8794.08	2/19/92	NA	NA	2/24/92	5	days	8794.08	2/19/92	NA	NA		2/25/92	6	days
MW6001-1	8794.05	2/19/92	NA	NA	2/24/92	5	days	8794.05	2/19/92	2/24/92	5	days	2/25/92	6	days
MW6024-1	8794.04	2/19/92	NA	NA	2/24/92	5	days	8794.04	2/19/92	2/24/92	5	days	2/25/92	6	days
MW792-1	8803.04	2/20/92	NA	NA	2/24/92	4	days	8803.04	2/20/92	2/24/92	4	days	2/25/92	5	days
MW91129-1	8794.01	2/19/92	NA	NA	2/24/92	5	days	8794.01	2/19/92	2/24/92	5	days	2/24/92	5	days
MW91601-1 (5)	8794.02	2/19/92	NA	NA	2/24/92	5	days	8794.02	2/19/92	2/24/92	5	days	2/24/92	5	days
MW981-1	8803.03	2/20/92	NA	NA	2/24/92	4	days	8803.03	2/20/92	2/24/92	4	days	2/25/92	5	days
MW9990-1	8819.01	2/21/92	NA	NA	2/26/92	5	days	8819.01	2/21/92	2/24/92	3	days	2/25/92	4	days
UST-ER1	8794.10	2/19/92	NA	NA	2/24/92	5	days	8794.10	2/19/92	2/24/92	5	days	2/25/92	6	days
UST-ER2	8803.05	2/20/92	NA	NA	2/24/92	4	days	8803.05	2/20/92	2/24/92	4	days	2/25/92	5	days
UST-TB1	8794.03	2/19/92	NA	NA	2/24/92	5	days	8794.03	2/19/92	2/24/92	5	days	2/24/92	5	days
UST-TB2	8803.02	2/20/92	NA	NA	2/24/92	4	days	8803.02	2/20/92	2/24/92	4	days	2/25/92	5	days
UST-TB3 (4)	8819.02	2/21/92	NA	NA	2/26/92	5	days	8819.02	2/21/92	2/24/92	3	days	2/25/92	4	days

(1) - Matrix spike duplicate
(2) - Matrix spike
(3) - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
(4) - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis
(5) - Duplicate of MW91129-1
NA - Not applicable\Not analyzed

AT510/923J189/USTHTIMS.XLS

TABLE 5 (Cont'd)
SUMMARY OF EXTRACTION AND ANALYSIS DATES
UST SITES
EGLIN AFB

	Petroleum Hydrocarbons - EPA 418.1							Lead - EPA 239.2						
Field ID	Lab ID #	Sampling Date	Extraction Date	Elapsed Time	Analysis Date	Elapsed Time		Lab ID #	Sampling Date	Extraction Date	Elapsed Time	Analysis Date	Elapsed Time	
MW3021-1 (3)	8803.01	2/20/92	NA	NA	2/25/92	5	days	8803.01	2/20/92	NA	NA	3/4/92	13	days
MW4204-1	8794.06	2/19/92	NA	NA	2/25/92	6	days	8794.06	2/19/92	NA	NA	3/4/92	14	days
MW4204-1 MSD (1)	8794.07	2/19/92	NA	NA	2/25/92	6	days	8794.07	2/19/92	NA	NA	3/4/92	14	days
MW4204-1 MS (2)	8794.08	2/19/92	NA	NA	2/25/92	6	days	8794.08	2/19/92	NA	NA	3/4/92	14	days
MW6001-1	8794.05	2/19/92	NA	NA	2/25/92	6	days	8794.05	2/19/92	NA	NA	3/4/92	14	days
MW6024-1	8794.04	2/19/92	NA	NA	2/25/92	6	days	8794.04	2/19/92	NA	NA	3/4/92	14	days
MW792-1	8803.04	2/20/92	NA	NA	2/25/92	5	days	8803.04	2/20/92	NA	NA	3/4/92	13	days
MW91129-1	8794.01	2/19/92	NA	NA	2/25/92	6	days	8794.01	2/19/92	NA	NA	3/4/92	14	days
MW91601-1 (5)	8794.02	2/19/92	NA	NA	2/25/92	6	days	8794.02	2/19/92	NA	NA	3/4/92	14	days
MW981-1	8803.03	2/20/92	NA	NA	2/25/92	5	days	8803.03	2/20/92	NA	NA	3/4/92	13	days
MW9990-1	8819.01	2/21/92	NA	NA	3/4/92	12	days	8819.01	2/21/92	NA	NA	3/4/92	12	days
UST-ER1	8794.10	2/19/92	NA	NA	2/25/92	6	days	8794.10	2/19/92	NA	NA	3/4/92	14	days
UST-ER2	8803.05	2/20/92	NA	NA	2/25/92	5	days	8803.05	2/20/92	NA	NA	3/4/92	13	days
UST-TB1	8794.03	2/19/92	NA	NA	2/25/92 *	6	days	8794.03	NA	NA	NA	NA	NA	
UST-TB2	8803.02	NA	NA	NA	NA	NA		8803.02	NA	NA	NA	NA	NA	
UST-TB3 (4)	8819.02	NA	NA	NA	NA	NA		8819.02	NA	NA	NA	NA	NA	

(1) - Duplicate
(2) - Matrix spike
(3) - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
(4) - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis
(5) - Duplicate of MW91129-1
* - Analysis performed but not requested
NA - Not applicable\Not analyzed

TABLE 5 (Cont'd)
SUMMARY OF EXTRACTION AND ANALYSIS DATES
UST SITES
EGLIN AFB

	BTEX - EPA 602							MTBE - EPA 602						
Field ID	Lab ID #	Sampling Date	Extraction Date	Elapsed Time	Analysis Date	Elapsed Time		Lab ID #	Sampling Date	Extraction Date	Elapsed Time	Analysis Date	Elapsed Time	
MW3021-1 (3)	8803.01	2/20/92	NA	NA	2/21/92	1	day	8803.01	2/20/92	NA	NA	2/21/92	1	day
MW4204-1	8794.06	2/19/92	NA	NA	2/21/92	2	days	8794.06	2/19/92	NA	NA	2/21/92	2	days
MW4204-1 MSD (1)	8794.07	2/19/92	NA	NA	2/21/92	2	days	8794.07	2/19/92	NA	NA	2/21/92	2	days
MW4204-1 MS (2)	8794.08	2/19/92	NA	NA	2/21/92	2	days	8794.08	2/19/92	NA	NA	2/21/92	2	days
MW6001-1	8794.05	2/19/92	NA	NA	2/21/92	2	days	8794.05	2/19/92	NA	NA	2/21/92	2	days
MW6024-1	8794.04	2/19/92	NA	NA	2/21/92	2	days	8794.04	2/19/92	NA	NA	2/21/92	2	days
MW792-1	8803.04	2/20/92	NA	NA	2/21/92	1	day	8803.04	2/20/92	NA	NA	2/21/92	1	day
MW91129-1	8794.01	2/19/92	NA	NA	2/21/92	2	days	8794.01	2/19/92	NA	NA	2/21/92	2	days
MW91601-1 (5)	8794.02	2/19/92	NA	NA	2/21/92	2	days	8794.02	2/19/92	NA	NA	2/21/92	2	days
MW981-1	8803.03	2/20/92	NA	NA	2/21/92	1	day	8803.03	2/20/92	NA	NA	2/21/92	1	day
MW9990-1	8819.01	2/21/92	NA	NA	2/25/92	4	days	8819.01	2/21/92	NA	NA	2/25/92	4	days
UST-ER1	8794.10	2/19/92	NA	NA	2/21/92	2	days	8794.10	2/19/92	NA	NA	2/21/92	2	days
UST-ER2	8803.05	2/20/92	NA	NA	2/21/92	1	day	8803.05	2/20/92	NA	NA	2/21/92	1	day
UST-TB1	8794.03	2/19/92	NA	NA	2/21/92	2	days	8794.03	2/19/92	NA	NA	2/21/92	2	days
UST-TB2	8803.02	2/20/92	NA	NA	2/21/92	1	day	8803.02	2/20/92	NA	NA	2/21/92	1	day
UST-TB3 (4)	8819.02	2/21/92	NA	NA	2/25/92	4	days	8819.02	2/21/92	NA	NA	2/25/92	4	days

(1) - Matrix spike duplicate
(2) - Matrix spike
(3) - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
(4) - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis
(5) - Duplicate of MW91129-1
NA - Not applicable\Not analyzed

AT510/923J189/USTHTIMS.XLS

TABLE 5 (Cont'd)
SUMMARY OF EXTRACTION AND ANALYSIS DATES
UST SITES
EGLIN AFB

	Polynuclear Aromatic Hydrocarbons - EPA 610							
Field ID	Lab ID #	Sampling Date	Extraction Date	Elapsed Time		Analysis Date	Elapsed Time	
MW3021-1 (3)	8803.01	2/20/92	2/28/92	8	days	3/6/92	15	days
MW4204-1	8794.06	2/19/92	2/28/92	9	days	3/6/92	16	days
MW4204-1 MSD (1)	8794.07	2/19/92	2/28/92	9	days	3/6/92	16	days
MW4204-1 MS (2)	8794.08	2/19/92	2/28/92	9	days	3/6/92	16	days
MW6001-1	8794.05	2/19/92	2/28/92	9	days	3/6/92	16	days
MW6024-1	8794.04	2/19/92	2/28/92	9	days	3/6/92	16	days
MW792-1	8803.04	2/20/92	2/28/92	8	days	3/6/92	15	days
MW91129-1	8794.01	2/19/92	2/28/92	9	days	3/6/92	16	days
MW91601-1 (5)	8794.02	2/19/92	2/28/92	9	days	3/6/92	16	days
MW981-1	8803.03	2/20/92	2/28/92	8	days	3/6/92	15	days
MW9990-1	8819.01	2/21/92	2/28/92	7	days	3/6/92	14	days
UST-ER1	8794.10	2/19/92	2/28/92	9	days	3/6/92	16	days
UST-ER2	8803.05	2/20/92	2/28/92	8	days	3/6/92	15	days
UST-TB1	8794.03	NA	NA	NA		NA	NA	
UST-TB2	8803.02	NA	NA	NA		NA	NA	
UST-TB3 (4)	8819.02	NA	NA	NA		NA	NA	

(1) - Matrix spike duplicate
(2) - Matrix spike
(3) - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
(4) - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis
(5) - Duplicate of MW91129-1
NA - Not applicable\Not analyzed

TABLE 6
SUMMARY OF QC ACCEPTANCE CRITERIA AND DETECTION LIMITS FOR MATRIX SPIKES, MATRIX SPIKE DUPLICATES AND SURROGATE SPIKES
UST SITES
EGLIN AFB

Analyte	Method	Detection Limit		Units	Spike Recovery, Percent (Range)		Relative Percent Difference (Range)	
1,2-Dichloroethane	EPA 601	1.0		ug/L	80-120	%	< 20	%
Ethylene Dibromide	EPA 504.1	0.01		ug/L	80-120	%	< 20	%
Petroleum Hydrocarbons	EPA 418.1	500	*	ug/L	75-125	%	< 20	%
Lead	EPA 239.2	3.0		ug/L	75-125	%	< 20	%
BTEX	EPA 602	1.0		ug/L	80-120	%	< 20	%
MTBE	EPA 602	1.0		ug/L	80-120	%	< 20	%
Polynuclear Aromatic Hydrocarbons	EPA 610	1.0		ug/L	80-120	%	< 20	%

* - Varies. See Table 7 for complete list of detection limits

TABLE 7
SUMMARY OF ANALYTICAL RESULTS
UST SITES
EGLIN AFB

		1,2-Dichloroethane		Ethylene Dibromide		Petroleum Hydrocarbons		
Sample Matrix	Sample ID	Detection Limit (ug/L)	Result (ug/L)	Detection Limit (ug/L)	Result (ug/L)	Detection Limit (ug/L)	Result (ug/L)	Page Number
Water	MW3021-1 (3)	1.0	ND	0.01	ND	500	ND	B-43,B-45,B-48
Water	MW4204-1	1.0	ND	0.01	ND	500	ND	B-6,B-8,B-10
Water	MW4204-1 MSD (2)	1.0	18.4	0.01	1.80	500	28,000	B-10, B-27, B-32
Water	MW4204-1 MS (2)	1.0	17.2	0.01	1.62	500	25,000	B-10, B-27, B-32
Water	MW6001-1	1.0	ND	0.01	ND	500	ND	B-6,B-8,B-10
Water	MW6024-1	1.0	ND	0.01	ND	500	ND	B-6,B-8,B-10
Water	MW792-1	1.0	ND	0.01	ND	500	ND	B-43,B-45,B-48
Water	MW91129-1	1.0	ND	0.01	ND	500	ND	B-6,B-8,B-10
Water	MW91601-1 (1)	1.0	ND	0.01	ND	500	ND	B-6,B-8,B-10
Water	MW981-1	1.0	ND	0.01	ND	500	600	B-43,B-45,B-48
Water	MW9990-1	1.0	ND	0.01	ND	1000	1,600	B-73,B-75,B-77
Water	UST-ER1	1.0	ND	0.01	ND	500	ND	B-6,B-8
Water	UST-ER2	1.0	ND	0.01	ND	1000	ND	B-43,B-45,B-48
Water	UST-TB1	1.0	ND	0.01	ND	500	ND*	B-6,B-8,B-10
Water	UST-TB2	1.0	ND	0.01	ND	NA	NA	B-43,B-45
Water	UST-TB3 (4)	1.0	ND	0.01	ND	NA	NA	B-73,B-75

(1) - Duplicate of MW91129-1
(2) - Matrix spike or matrix spike duplicate
(3) - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
(4) - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis
J - Estimated value
N - Tentative identification
ND - Not detected
NA - Not analyzed/Not applicable
* - Analysis performed but not requested

AT510/923J189/USTSAR.XLS

TABLE 7 (Cont'd)
SUMMARY OF ANALYTICAL RESULTS
UST SITES
EGLIN AFB

		Lead		BTEX		MTBE		Polynuclear Aromatic Hydrocarbons		
Sample Matrix	Sample ID	Detection Limit (ug/L)	Result (ug/L)	Detection Limit (ug/L)	Result (ug/L)	Detection Limit (ug/L)	Result (ug/L)	Detection Limit (ug/L)	Result (ug/L)	Page Number
Water	MW3021-1 (3)	3.0	ND	1.0	Toluene - 0.5 JN	1.0	ND	1.0	Fluoranthene - 2.0 J	B-47,B-49,B-50
Water	MW4204-1	3.0	6.9 J	1.0	ND	1.0	ND	1.0	1.0 UJ	B-11,B-21,B-22
Water	MW4204-1 MSD (2)	3.0	8.0 J	1.0	VARIES	1.0	42.4	1.0	VARIES	B-11, B-29, B-34
Water	MW4204-1 MS (2)	3.0	16.5 J	1.0	VARIES	1.0	44.6	1.0	VARIES	B-11, B-29, B-34
Water	MW6001-1	3.0	ND	1.0	ND	1.0	ND	1.0	1.0 UJ	B-11,B-19,B-20
Water	MW6024-1	3.0	10.2	1.0	ND	1.0	ND	1.0	1.0 UJ	B-11,B-17,B-18
Water	MW792-1	3.0	142.0	1.0	ND	1.0	ND	1.0	1.0 UJ	B-47,B-55,B-56
Water	MW91129-1	3.0	26.6	1.0	ND	1.0	ND	1.0	1.0 UJ	B-11,B-12,B-13
Water	MW91601-1 (1)	3.0	21.4	1.0	ND	1.0	ND	1.0	1.0 UJ	B-11,B-14,B-15
Water	MW981-1	3.0	5.4	1.0	ND	1.0	ND	1.0	1.0 UJ	B-47,B-53,B-54
Water	MW9990-1	3.0	ND	1.0	ND	1.0	ND	1.0	ND	B-78,B-79,B-80
Water	UST-ER1	3.0	ND	1.0	ND	1.0	ND	1.0	1.0 UJ	B-11,B-23,B-24
Water	UST-ER2	3.0	ND	1.0	Xylenes - 0.7 JN	1.0	ND	1.0	1.0 UJ	B-47,B-57,B-58
Water	UST-TB1	NA	NA	1.0	ND	1.0	ND	NA	NA	B-16
Water	UST-TB2	NA	NA	1.0	ND	1.0	ND	NA	NA	B-52
Water	UST-TB3 (4)	NA	NA	1.0	ND	1.0	ND	NA	NA	B-81

(1) - Duplicate of MW91129-1
(2) - Matrix spike or matrix spike duplicate
(3) - Mistakenly labeled as MW3024-1 on laboratory data sheets for Ethylene Dibromide analysis
(4) - Mistakenly labeled as MW91601 on laboratory data sheets for Ethylene Dibromide analysis
J - Estimated value
N - Tentative identification
ND - Not detected
NA - Not analyzed/Not applicable
UJ - Due to holding times exceeding criteria for extractions, the method detection limits are estimated and all nondetections are qualified as estimated and presented with the detection limit

AT510/923J189/USTSAR.XLS

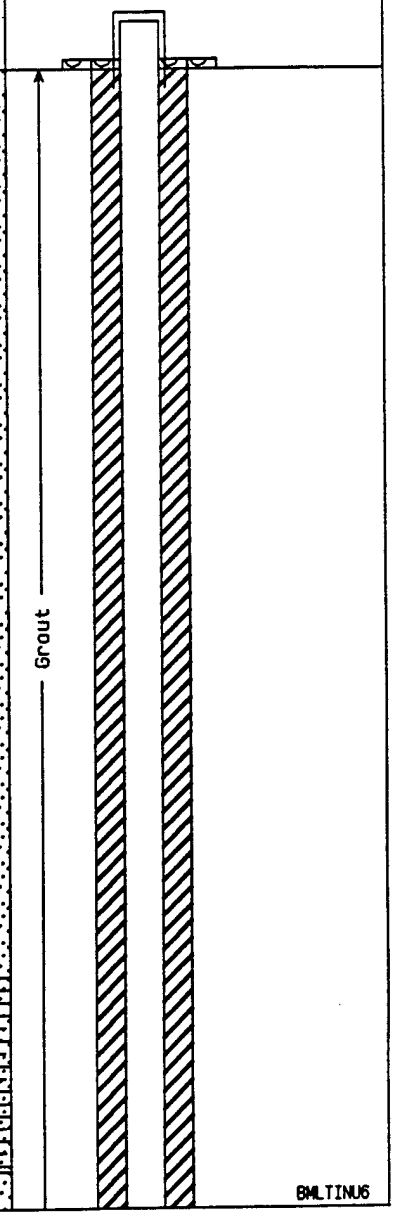
APPENDIX A
DRILLING RECORDS

ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 3021 - Duke Field
Boring I.D. SB3021-1
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/5/92
Date Completed 2/5/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 59
Ground Elevation (ft) Not measured
Depth to Water (ft) 55.25
Date Measured 2/6/92

Project I.D. AT510.04
Well I.D. MW3021-1
Date Installed 2/6/92
Date Grouted 2/6/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-49
Screened Interval (ft) 49-59
Sump Installed? No
Well Depth (ft) 59
TOC Elevation (ft) Not measured
Water Level (ft) 55.25
Date Measured 2/6/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS
0		1,2, 1,1	50	75	SAND, fine to medium, trace silt, light brown, very loose, slightly moist.	SW
5		1,1, 1,1	70	75	SAND, fine to medium, moderately sorted, yellowish brown, very loose, slightly moist.	
10		2,3, 4,6	100	60	SAND, fine to medium, light brown, very loose to loose, slightly moist.	
15		4,5, 6,7	85	100	SAND, fine to medium, moderately sorted, orangish brown, loose, slightly moist.	
20		4,4, 4,4	85	250	As above except very loose.	
25		3,9, 13,16	100	320	SAND and CLAY, fine to medium, trace silt, white to reddish brown, mottled, loose to firm, slightly moist.	SC
						SW

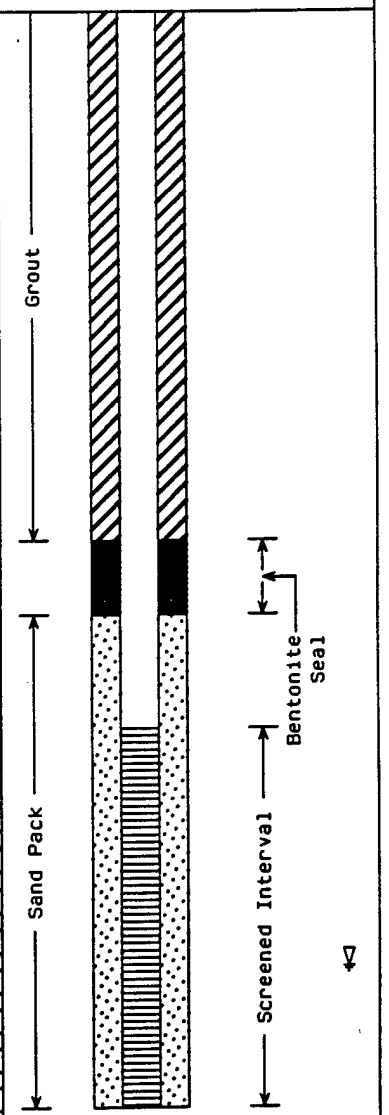


ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 3021 - Duke Field
Boring I.D. SB3021-1
Geologist R. Surrency

Project I.D. AT510.04
Well I.D. MW3021-1
Date Installed 2/6/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	%REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
30	X	9,12, 13,14	90	500	SAND, some silt, fine to medium, white to orangish brown, firm, slightly moist.	SW	
35	X	9,12, 13,15	100	300	SAND, fine to medium, trace silt, white to light gray, loose to firm, slightly moist.		
40	X	6,9, 12,13	100	160	SAND, fine to medium, well sorted, white, loose to firm, slightly moist.		
45	X	5,9, 13,21	100	125	As above except loose to very firm.		
50	X	7,11, 13,16	100	400	SAND, fine to medium, trace silt, white, firm, moist.		
55	X	9,13, 14,14	95	340	As above, moist to 55.8', wet at 55.8'.		
60	X	11,10, 11,13	95	130	SAND, fine to medium, some silt, white, loose to firm.		
65					Total Depth = 59'		



BMLTINU6

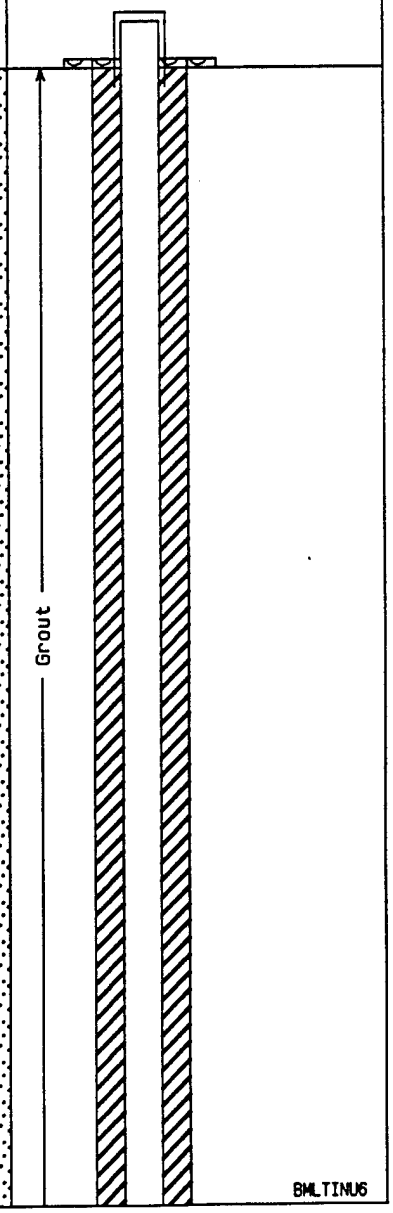
ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 4204 - Field No. 4
Boring I.D. SB4204-1
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/7/92
Date Completed 2/7/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 50
Ground Elevation (ft) Not measured
Depth to Water (ft) 48.12
Date Measured 2/7/92

Project I.D. AT510.04
Well I.D. MW4204-1
Date Installed 2/7/92
Date Grouted 2/7/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-40
Screened Interval (ft) 40-50
Sump Installed? No
Well Depth (ft) 50
TOC Elevation (ft) Not measured
Water Level (ft) 48.12
Date Measured 2/7/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
0		4,3, 3,2	70	10	SAND, fine to medium, trace silt, shell fragments, reddish brown, very loose, well sorted, slightly moist.	SW	
5		1,3, 2,2	40	12	SAND, fine to medium, trace silt, yellowish brown, very loose, moderately sorted, slightly moist.		
10		3,3, 4,4	75	5	SAND, fine to medium, light yellowish brown, very loose, moderately sorted, slightly moist.		
15		4,5, 8,13	95	60	SAND, fine to medium, trace silt, orangish brown to 15', white from 15-15.4', orangish brown from 15.4-15.8', white, fine sand from 15.8-16', loose to firm, slightly moist.		
20		5,8, 8,7	75	13	SAND, fine to medium, white to 20.2', brown from 20.2 to 21', loose, slightly moist.		
25		9,11, 21,26	85	200	SAND, fine to medium, white to light brown, banded, firm to very firm, slightly moist.		

WELL DIAGRAM



ENGINEERING - SCIENCE

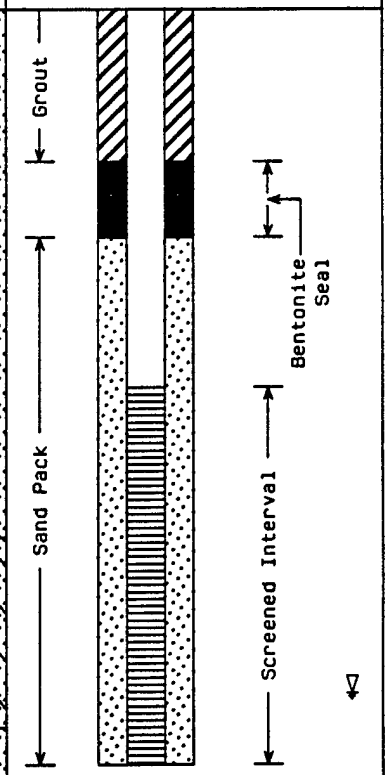
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 4204 - Field No. 4
Boring I.D. SB4204-1
Geologist R. Surrency

Project I.D. AT510.04
Well I.D. MW4204-1
Date Installed 2/7/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	%REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
30	X	4,8, 9,8	80	50	SAND, fine to medium, white to 30.5', dark brown from 30.5-31', loose, moderately sorted.	SW	
35	X	8,14, 19,23	75	240	SAND, medium to coarse, white to light brown, poorly sorted, firm to very firm, slightly moist.		
40	X	5,11, 14,19	90	6	SAND, medium to coarse to 40.6', fine to medium from 40.6-41', white to light brown, firm, slightly moist.		
45	X	9,11, 16,16	100	180	SAND and SILT, fine to medium to 45.5', medium to coarse from 45.5-46', dark brown, wet at 45.5'.	SM	
50	X	4,6, 9,23	70	280	SAND, medium to coarse, some silt, light brown, poorly sorted, loose to very firm, wet.	SW	
					Total Depth = 50'		
55							
60							
65							

WELL DIAGRAM



BMLTINU6

ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

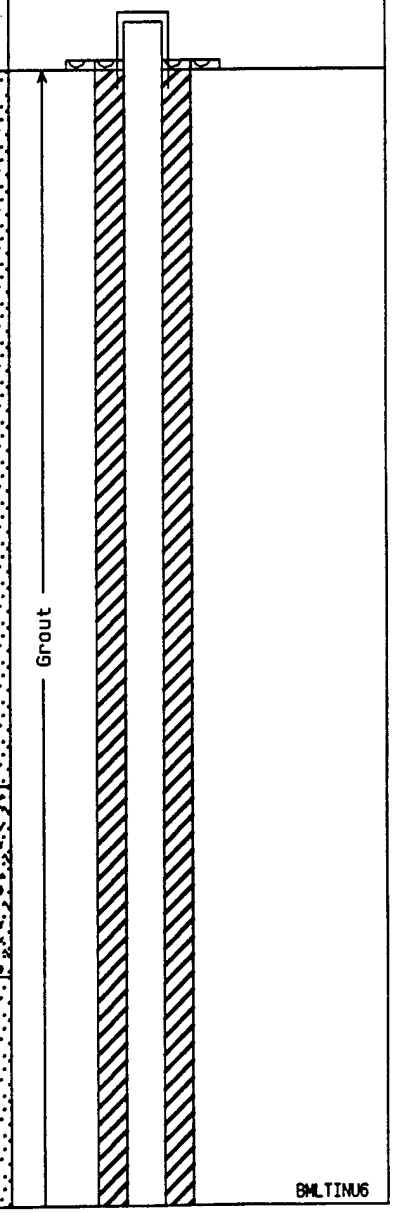
Client Eglin AFB
Site Bldg. 6001 - Field No. 6
Boring I.D. SB6001-1
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/4/92
Date Completed 2/4/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 64
Ground Elevation (ft) Not measured
Depth to Water (ft) 59.13
Date Measured 2/5/92

Project I.D. AT510.04
Well I.D. MW6001-1
Date Installed 2/4/92
Date Grouted 2/4/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-49
Screened Interval (ft) 49-64
Sump Installed? No
Well Depth (ft) 64
TOC Elevation (ft) Not measured
Water Level (ft) 59.13
Date Measured 2/5/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS
0		3,2, 2,3	60	0	SAND, medium to coarse, trace silt, pebbly, reddish brown, very loose, slightly moist.	SW
5		1,2, 1,1	60	1	As above, well sorted, moist, very loose.	
10		1,1, 1,1	90	15	SAND, medium to coarse, trace silt, reddish brown, very loose, moist.	
15		3,5, 5,7	90	20	SAND, fine to medium, some silt, trace clay, reddish brown, loose, moist.	
20		5,6, 6,6	95	140	SAND and SILT, trace clay, fine to medium, reddish brown to light brown, loose, trace of black color (possibly fuel staining), slight fuel odor, moist.	SM
25		5,9, 13,16	90	130	SAND, medium to coarse, trace silt, light brown to 25', reddish brown from 25-26', slight fuel odor, loose to firm, slightly moist.	SW

GRAPHIC LOG

WELL DIAGRAM



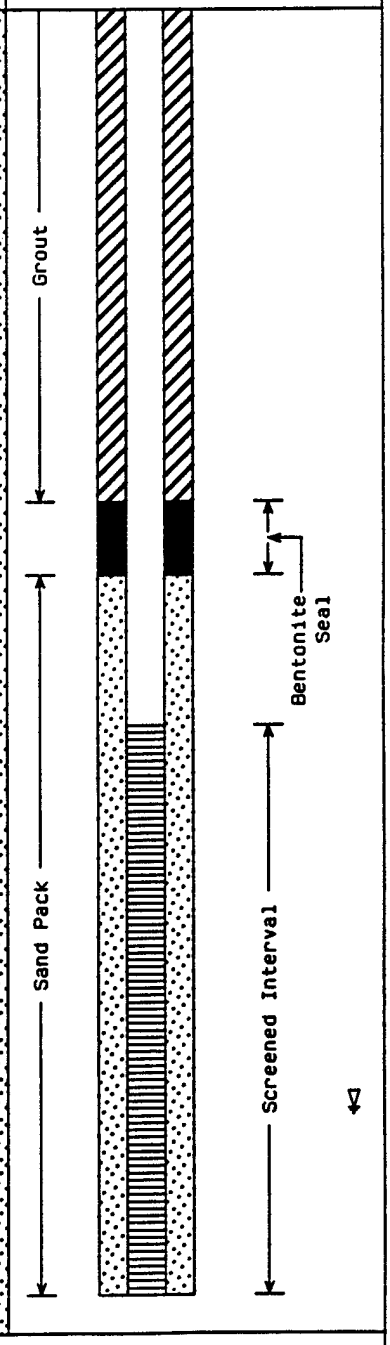
BMLTINU6

ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 6001 - Field No. 6
Boring I.D. SB6001-1
Geologist R. Surrency

Project I.D. AT510.04
Well I.D. MW6001-1
Date Installed 2/4/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	%REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
30	X	4,10, 11,11	100	175	SAND, fine to medium, light gray, well sorted, slight fuel odor, loose to firm, slightly moist.	SW	
35	X	9,11, 13,13	90	220	SAND, medium to coarse, trace silt, reddish brown to 35.5', light gray from 35.5-36', slight odor, slightly moist.		
40	X	5,9, 11,14	80	180	SAND, medium to coarse, well sorted, white, slight odor, loose to firm, slightly moist.		
45	X	6,11, 16,17	80	175	SAND, medium, well sorted, white to light pink, loose to firm, slightly moist, slight odor.		
50	X	5,9, 13,20	60	170	As above.		
55	X	10,15, 17,20	60	60	SAND, medium, well sorted, white, no odor, firm, moist.		
60	X	3,8, 10,13	95	17	As above, loose to firm, wet.		
65	X				As above. Total Depth = 64'		



BMLTINU6

ENGINEERING - SCIENCE

SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 6001 - Field No. 6
Boring I.D. SB6001-1
Geologist R. Surrency

Project I.D. AT510.04
Well I.D. MW6001-1
Date Installed 2/4/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	%REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG	WELL DIAGRAM
65	X	0,0, 0,7	90	0		SW		
70								
75								
80								
85								
90								
95								
100								

BMLTINU6

ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 6024 - Field No. 6
Boring I.D. SB6024-2
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/5/92
Date Completed 2/5/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 60
Ground Elevation (ft) Not measured
Depth to Water (ft) 57.85
Date Measured 2/5/92

Project I.D. AT510.04
Well I.D. MW6024-1
Date Installed 2/5/92
Date Grouted 2/5/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-50
Screened Interval (ft) 50-60
Sump Installed? No
Well Depth (ft) 60
TOC Elevation (ft) Not measured
Water Level (ft) 57.85
Date Measured 2/5/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG	WELL DIAGRAM
0		3,4, 6,8	80	10	SAND, fine to coarse, yellowish brown, very loose to loose, slightly moist.	SW		
5		2,2, 2,4	50	10	SAND, fine to medium, trace silt, yellowish brown, very loose, slightly moist.			
10		3,2, 3,3	85	11	SAND, fine to medium, some silt, reddish brown, very loose, slightly moist.			
15		5,4, 5,5	90	11	As above except very loose to loose.			Grout
20		7,9, 9,11	90	12	SAND, fine to medium, some silt, reddish brown, loose to firm, slightly moist.			
25		4,7, 9,11	80	13	SAND, fine to medium, trace silt, white to light pink, loose to firm, moderately sorted, slightly moist.			

BMLTINU6

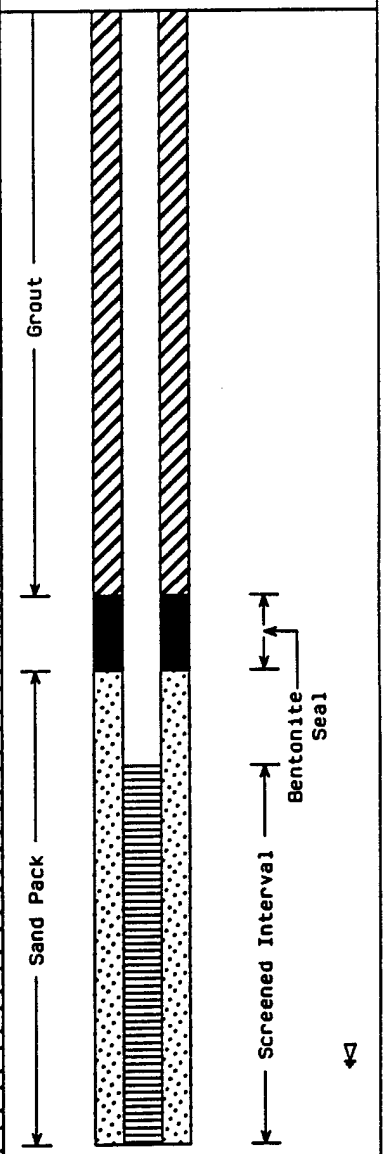
ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 6024 - Field No. 6
Boring I.D. SB6024-2
Geologist R. Surrency

Project I.D. AT510.04
Well I.D. MW6024-1
Date Installed 2/5/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	%REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
30	X	5,12, 12,14	80	12	SAND, fine to medium, orangish brown to white, firm, banded, moderately sorted, slightly moist.	SW	
35	X	5,9, 16,14	80	12	As above except loose to firm.		
40	X	5,9, 13,15	75	450	SAND, fine to medium, white, loose to firm, well sorted, no odor, slightly moist.		
45	X	6,14, 14,16	80	600	SAND, fine to medium, trace silt, white, firm, well sorted, no odor, very moist.		
50	X	9,11, 19,21	90	200	As above except firm to very firm, no odor, moist.		
55	X	11,14, 18,16	90	240	SAND, fine to medium, well sorted, light brown to white, firm, no odor, moist to 55.7', wet at 55.7'.		
60	X	0,0, 4,5	50	35	SAND, fine to medium, trace silt, orangish brown, very loose to loose, no odor, wet.		
65					Total Depth = 60'		

WELL DIAGRAM



BMLTINU6

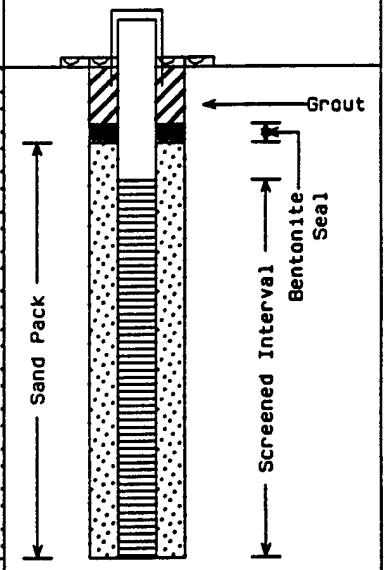
ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 792 - Eglin Main
Boring I.D. SB792-1
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/10/92
Date Completed 2/10/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 13
Ground Elevation (ft) Not measured
Depth to Water (ft) Not measured
Date Measured 2/11/92

Project I.D. AT510.04
Well I.D. MW792-1
Date Installed 2/10/92
Date Grouted 2/11/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-3
Screened Interval (ft) 3-13
Sump Installed? No
Well Depth (ft) 13
TOC Elevation (ft) Not measured
Water Level (ft) Not measured
Date Measured 2/11/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
0		Hand Auger	100	24	SAND, fine to medium, moderately sorted, tan to light brown, slightly moist.	SW	
5		2,1, 1,3	80	17	SAND, fine to medium, moderately sorted, tan to white, very loose, wet.		
10		1,3, 3,6	50	34	SAND, medium to coarse, trace silt, poorly sorted, tan to white, very loose to loose, wet.		
					Total Depth = 13'		
15							
20							
25							

WELL DIAGRAM



BMLTINU6

ENGINEERING - SCIENCE

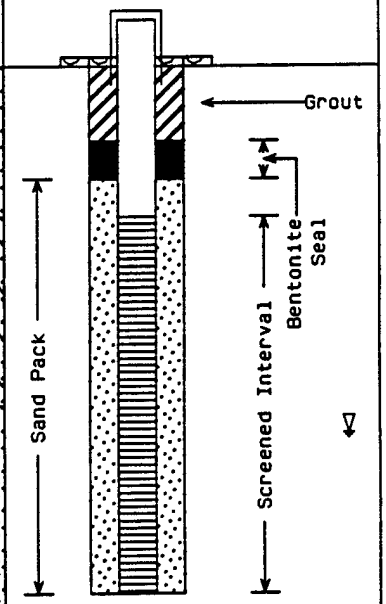
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 91129 - Hurlburt Field
Boring I.D. SB91129-2
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/3/92
Date Completed 2/3/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 14
Ground Elevation (ft) Not measured
Depth to Water (ft) 9.73
Date Measured 2/4/92

Project I.D. AT510.04
Well I.D. MW91129-1
Date Installed 2/3/92
Date Grouted 2/3/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-4
Screened Interval (ft) 4-14
Sump Installed? No
Well Depth (ft) 14
TOC Elevation (ft) Not measured
Water Level (ft) 9.73
Date Measured 2/4/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
0		3,5, 5,5	90	0.3	SAND, medium to coarse, trace silt, reddish brown, shell fragments, asphalt fragments, loose, slightly moist.	SW	
5		3,5, 5,2	75	200	SAND and SILT, reddish brown, wood fragments, very loose to loose, gray sand at 5.5', slightly moist, wet at 5.8'.	SM	
10		2,3, 3,5	75	0.3	SAND, fine to medium, some silt, black, wood fragments at 10', slight organic odor, very loose to loose, wet.	SW	
15		3,4, 9,12	30	0	SAND, medium to coarse, white, wood fragments at 15', very loose to firm, well sorted, wet.		
20					Total Depth = 14'		
25							

WELL DIAGRAM



BMLTINU6

ENGINEERING - SCIENCE

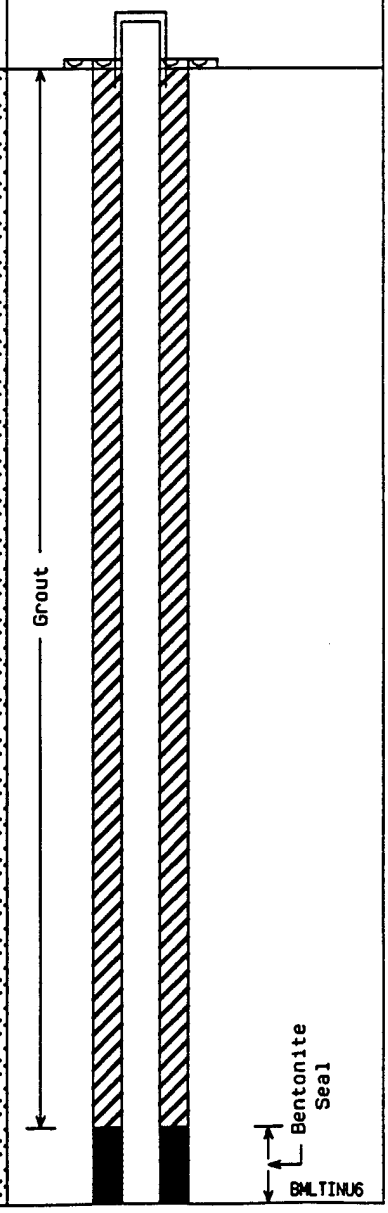
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 981 - Eglin Main
Boring I.D. SB981-1
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/10/92
Date Completed 2/10/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 44
Ground Elevation (ft) Not measured
Depth to Water (ft) 41.32
Date Measured 2/11/92

Project I.D. AT510.04
Well I.D. MW981-1
Date Installed 2/10/92
Date Grouted 2/11/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-34
Screened Interval (ft) 34-44
Sump Installed? No
Well Depth (ft) 44
TOC Elevation (ft) Not measured
Water Level (ft) 41.32
Date Measured 2/11/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
0		Hand Auger	100	5	SAND, fine to medium, moderately sorted, tan to light brown, slightly moist.	SW	
5		1,1, 1,1	70	600	As above except brown and very loose.		
10		1,1, 1,2	80	320	SAND, fine to medium, moderately sorted, brown, very loose, slightly moist.		
15		1,3, 3,5	90	360	SAND, fine to medium, trace silt, moderately sorted, yellowish brown to tan, very loose to loose, slightly moist.		
20		6,9, 12,15	80	80	SAND, fine to medium, well sorted, orangish brown, loose to firm, slightly moist.		
25		3,9, 13,17	80	12	SAND, fine to medium, well sorted, orangish brown to white, loose to firm, slightly moist.		

WELL DIAGRAM



ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 981 - Eglin Main
Boring I.D. SB981-1
Geologist R. Surrency

Project I.D. AT510.04
Well I.D. MW981-1
Date Installed 2/10/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	%REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG	WELL DIAGRAM
30	X	9,18, 25,31	80	13	SAND, medium to coarse, poorly sorted, orangish brown to white, firm to dense, slightly moist.	SW		
35	X	9,13, 18,27	80	12	SAND, fine, well sorted, white, firm to very firm, slightly moist.			
40	X	6,10, 19,25	50	11	SAND, medium to coarse, poorly sorted, light gray to white, loose to very firm, wet.			
45	X	6,15, 19,52	70	11	SAND, medium to coarse, poorly sorted, brown, firm to very dense, wet.			
					Total Depth = 44'			
50								
55								
60								
65								

Sand Pack
Screened Interval

BMLTINU6

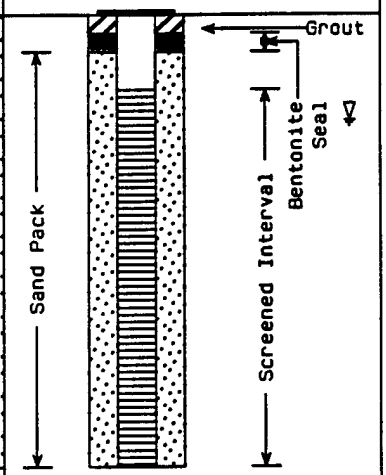
ENGINEERING - SCIENCE
SOIL BORING LOG AND WELL CONSTRUCTION RECORD

Client Eglin AFB
Site Bldg. 9990 - Cape San Blas
Boring I.D. SB9990-1
Geologist/Engineer R. Surrency
Drilling Method HSA 4.25 ID
Sampling Method Split Spoon
Date Started 2/13/92
Date Completed 2/13/92
Driller Griner Drilling Co.
Borehole Diameter (in) 6
Depth Drilled (ft) 12
Ground Elevation (ft) Not measured
Depth to Water (ft) 2.82
Date Measured 2/13/92

Project I.D. AT510.04
Well I.D. MW9990-1
Date Installed 2/13/92
Date Grouted 2/13/92
Casing Material 2" PVC Sch. 40
Screen Material same, 0.010 slot
Casing Interval (ft) 0-2
Screened Interval (ft) 2-12
Sump Installed? No
Well Depth (ft) 12
TOC Elevation (ft) Not measured
Water Level (ft) 2.82
Date Measured 2/13/92

DEPTH (feet)	SAMPLE	BLOWS/6 IN	% REC.	HNu/OVA (ppm)	LITHOLOGIC DESCRIPTION	SOIL CLASS	GRAPHIC LOG
0		Post Hole	100	0	SAND, fine, light brown, slightly moist.	SW	
5		2,3, 6,11	70	0	SAND, fine, white, very loose to firm, wet.		
10		2,3, 3,6	50	0	SAND, fine, gray, very loose to loose, wet.		
					Total Depth = 12'		
15							
20							
25							

WELL DIAGRAM



BMLTINU6

Form 2
ENGINEERING-SCIENCE
Well Development Record

Well I.D.: MW 6001-1
Location: Eglin AFB - Fld #6 - Bldg 6001
Project No.: AT510.04
Development Performed by: Griner Drilling
Development Supervised by: Engineering-Science
Development Method: BK Pump

Date Well Installed: 2-4-92
Date Development Began: 2-11-92
Date Development Completed: 2-11-92
Time Development Began: 1445
Time Development Completed: 1524
Drilling Method: HSA 4.25 I.D

Well Depth: 64'
Sounded Bottom of Well (pre-development): 65.65 (stick up) casing
Water Level: 59.40
Well Diameter (I.D.) 2"
Screen Length: 15'
Volume of Water in Well: 1 gallon

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.653
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mohos)	Temp (°F)	Recharge Rate	Comments
2-11		1445		0	8.58	250	19.4		Pump at 63' Milky white water
"		1454		10	8.33	200	21.1	slow	"
"		1504		15	8.26	200	21.2	slow	"
"		1508		20	8.23	180	21.1	slow	"
"		1516		25	8.19	180	21.0	"	slightly milky color
"		1521		30	8.21	170	21.0	"	
"									
"									

Post Development Data

Sounded Bottom of Well: 65.70
Water Level: 59.85
Total Volume of Water Removed: 30 gal
Total Development Time: 36 min

Form 2

ENGINEERING-SCIENCE

Well Development Record

Well I.D.: MW4204-1
Location: Eglin AFB - Field #4 - Bldg 4204
Project No.: AT510.04
Development Performed by: Guinea Drilling
Development Supervised by: Engineering-Science
Development Method: BK Pump

Date Well Installed: 2-7-92
Date Development Began: 2-11-92
Date Development Completed: 2-11-92
Time Development Began: 1726
Time Development Completed: 1749
Drilling Method: HSA 4.25 I.D

Well Depth: 50'
Sounded Bottom of Well (pre-development): 52.10' (stick up casing)
Water Level: 48.21'
Well Diameter (I.D.) 2"
Screen Length: 10'
Volume of Water in Well: 0.6 gallons

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.653
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mohos)	Temp (°F)	Recharge Rate	Comments
2-11		1726		0	7.79	100	18.0		Pump at 49' silty
"		1730		15	7.97	70	19.1		silty - brown
		1734		30	7.83	70	19.5		slightly silty
		1737		40	7.81	70	20.1		"
		1741		50	7.79	70	20.0		"
		1746		60	7.97	70	19.8		"
		1749		65	7.84	70	19.9		"

Post Development Data

Sounded Bottom of Well: 52.09'
Water Level: 48.23'
Total Volume of Water Removed: 65 gal
Total Development Time: 23 min.

Form 2
ENGINEERING-SCIENCE
Well Development Record

Well I.D.: MW6024-1
Location: EGLIN AFB - Field #6 - Bldg. 6024
Project No.: AT510.04
Development Performed by: Griner Drilling
Development Supervised by: Engineering-Science
Development Method: BK Pump

Date Well Installed: 2-5-92
Date Development Began: 2-11-92
Date Development Completed: 2-11-92
Time Development Began: 1546
Time Development Completed: 1613
Drilling Method: HSA 4.25 I.D

Well Depth: 60'
Sounded Bottom of Well (pre-development): ~~65.65'~~ RS 62.60' (stick up of casing)
Water Level: ~~59.40'~~ RS 58.02'
Well Diameter (I.D.) 2"
Screen Length: 10'
Volume of Water in Well: 0.7 gallons

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.633
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mmhos)	Temp (°F)	Recharge Rate	Comments
2-11		1546		0	8.16	50	19.0	fast	Pump at 54' water is silty, orangish brown
"		1549		10	7.51	30	20.1	"	water is milky colored
		1555		20	7.28	30	20.0	"	Pump at 57' milky colored
		1559		30	7.13	30	20.1	"	"
		1604		40	7.09	30	20.2	"	slightly cloudy ~~clear~~ water
		1607		45	7.03	30	20.0	"	slightly cloudy
		1610		50	7.05	30	19.9	"	"
		1613		55	7.02	30	20.1	"	

Post Development Data

Sounded Bottom of Well: 62.60'
Water Level: 58.08'
Total Volume of Water Removed: 55 gal.
Total Development Time: 27 min.

Form 2
ENGINEERING-SCIENCE
Well Development Record

Well I.D.: MW3021-1
Location: Eglin AFB - Duke Field - Bldg. 3021
Project No.: AT510.04
Development Performed by: Grinc Drilling
Development Supervised by: Engineering-Science
Development Method: BK Pump

Date Well Installed: 2-6-92
Date Development Began: 2-12-92
Date Development Completed: 2-12-92
Time Development Began: 0927
Time Development Completed: 0956
Drilling Method: HSA 4.25 I.D.

Well Depth: 59'
Sounded Bottom of Well (pre-development): 61.20' (bottom of casing)
Water Level: 55.46'
Well Diameter (I.D.): 2"
Screen Length: 10'
Volume of Water in Well: 1 gallon

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.653
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mohos)	Temp (°F)	Recharge Rate	Comments
2-12	1	0927		0	9.10	100	17.9		Pump at 56' Milky white color
"		0931		10	8.48	40	20.3		"
"		0935		15	8.15	30	20.5		slightly cloudy
"		0937		20	7.93	30	20.5		Pump at 58' "
"		0944		25	7.83	30	20.2		"
"		0946		30	7.82	30	20.2		"
"		0948		35	7.84	30	20.4		clear
		0953		45	7.81	30	20.1		clear
		0956		50	7.82	30	20.2		clear

Post Development Data

Sounded Bottom of Well: 61.20'
Water Level: 55.48'
Total Volume of Water Removed: 50 gallons
Total Development Time: 29 minutes

Form 2

ENGINEERING-SCIENCE

Well Development Record

Well I.D.: MW91129-1
Location: EGLIN AFB. Hurlburt Field, Bldg 91129
Project No.: AT510.04
Development Performed by: Griner Drilling
Development Supervised by: Engineering-Science
Development Method: BK Pump

Date Well Installed: 2-3-92
Date Development Began: 2-12-92
Date Development Completed: 2-12-92
Time Development Began: 0745
Time Development Completed: 0757
Drilling Method: HSA 4.25 ID

Well Depth: 14'
Sounded Bottom of Well (pre-development): 16.10' (stick up casing)
Water Level: 8.54'
Well Diameter (I.D.) 2"
Screen Length: 10'
Volume of Water in Well: 1 gallon

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.653
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mmhos)	Temp (°F)	Recharge Rate	Comments
2-12		0745		0	9.70	740	13.7		Pump at 13'. Dark brown; organic odor
"		0747		15	9.65	730	16.0		"
"		0751		30	9.62	770	15.3		Light brown; organic odor
"		0753		45	9.57	760	17.3		" "
"		0755		55	9.54	770	17.4		" "
"		0757		60	9.50	770	16.7		" "

Post Development Data

Sounded Bottom of Well: 16.13
Water Level: 9.57
Total Volume of Water Removed: 60 gal
Total Development Time: 12 min

Form 2
ENGINEERING-SCIENCE
Well Development Record

Well I.D.: MW 792-1
Location: Ealin Main - Building 792
Project No.: AT510.04
Development Performed by: Grinet Drilling
Development Supervised by: Engineering-Science
Development Method: BK Pump

Date Well Installed: 2-10-92
Date Development Began: 2-12-92
Date Development Completed: 2-12-92
Time Development Began: 1158
Time Development Completed: 1215
Drilling Method: HSA 4.25 ID

Well Depth: 13'
Sounded Bottom of Well (pre-development): 14.80'
Water Level: 6.62'
Well Diameter (I.D.) 2"
Screen Length: 10'
Volume of Water in Well: 1.3 gallons

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.653
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mmhos)	Temp (°F)	Recharge Rate	Comments
		1158		0	11.95	4420	19.6		Pump at 12' Very silty
		1200		10	9.61	220	18.4		"
		1203		25	9.16	190	18.9		"
		1205		35	8.97	190	18.6		"
		1207		45	8.86	180	18.9		"
		1209		60	8.84	180	18.5		"
		1213		70	8.80	170	19.8		"
		1215		80	8.81	170	18.7		"

Post Development Data

Sounded Bottom of Well: 14.83'
Water Level: 6.71'
Total Volume of Water Removed: 80 gal
Total Development Time: 17 min

Form 2

ENGINEERING-SCIENCE

Well Development Record

Well I.D.: MW981-1
Location: Eglin MSA - Bldg 981
Project No.: AT510.04
Development Performed by: Grimes Drilling
Development Supervised by: Engineering-Science
Development Method: BK Pump

Date Well Installed: 2-10-92
Date Development Began: 2-12-92
Date Development Completed: 2-12-92
Time Development Began: 1105
Time Development Completed: 1118
Drilling Method: HSA 4.25 ID

Well Depth: 44'
Sounded Bottom of Well (pre-development): 45.12' (stick up casing)
Water Level: 41.28'
Well Diameter (I.D.) 2"
Screen Length: 10'
Volume of Water in Well: 0.6 gallons

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.653
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mohos)	Temp (°F)	Recharge Rate	Comments
2-12		1105		0	8.66	170	22.4		Pump at 43' Dark brown
"		1108		15	8.68	160	22.6		light brown
"		1111		25	8.62	150	22.3		"
"		1113		35	8.65	160	22.3		"
"		1115		45	8.66	150	22.2		"
"		1118		55	8.69	150	22.3		slightly cloudy
				~~60~~ 55					

Post Development Data

Sounded Bottom of Well: 45.13'
Water Level: 41.30'
Total Volume of Water Removed: 55 gal
Total Development Time: 13 min

Form 2
ENGINEERING-SCIENCE
Well Development Record

Well I.D.: MW 9990-1
Location: Eglin AFB -
Project No.: AT510.04
Development Performed by: Grine Drilling
Development Supervised by: Engineering Science
Development Method: BK Pump

Date Well Installed: 2-13-92
Date Development Began: 2-13-92
Date Development Completed: 2-13-92
Time Development Began: 1021
Time Development Completed: 1034
Drilling Method: HSA 4.25 I.D.

Well Depth: 12
Sounded Bottom of Well (pre-development): 14'
Water Level: 4.92
Well Diameter (I.D.) 2
Screen Length: 10'
Volume of Water in Well: 1.5 gallons

Conversion Factors
(gal/ft)
2 inch I.D. Well=0.163
4 inch I.D. Well=0.653
6 inch I.D. Well=1.472

Development Data

Date	Run	Time Start	Time Finish	Volume Removed (gal)	pH	Conductivity (mmhos)	Temp (°F)	Recharge Rate	Comments
2-13		1021		0	8.48	350	18.5		silty, Gray color
"		1023		10	8.63	410	17.5		slightly silty
"		1025		20	8.65	430	17.7		"
"		1027		30	8.64	430	17.2		"
		1029		40	8.67	430	17.1		clear
		1032		50	8.67	420	17.3		clear
		1034		60	8.65	420	17.3		clear

Post Development Data

Sounded Bottom of Well: 14.07'
Water Level: 4.99
Total Volume of Water Removed: 60 gal
Total Development Time: 13 min

APPENDIX B
ANALYTICAL DATA

ANALYTICAL DATA
BATCH 8794

MEMORANDUM

March 30, 1992

To: File

From: J. A. Banton

Subject: Eglin AFB, Job No. AT510.04
Data Review, UST Sites
Batch 8794

TPH (E418.1) analyses met QA/QC criteria for holding times, blanks, and matrix spike/matrix spike duplicates.

BETX and MTBE (E602) analyses met QA/QC criteria for holding times, blanks, matrix spike/matrix spike duplicate, and surrogate recoveries. Benzene results that were analyzed by E602 failed to meet USAF maximum allowable detection limits; however, the detection limits did meet Florida petroleum contamination site clean-up criteria maximum allowable detection limits.

EDB (E504) analyses met QA/QC criteria for holding times, LCS matrix spike/matrix spike duplicate, and surrogate recoveries.

Lead (E239.2) analyses met QA/QC criteria for holding times. The matrix spike/matrix spike duplicate had a low percent recovery. The lead result in sample MW4204 was flagged "J" due to this problem.

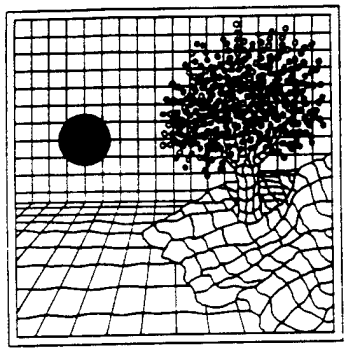
1,2-DCE (E601) analyses met QA/QC criteria for holding times, blanks, matrix spike/matrix spike duplicate, and surrogate recoveries.

PAH (E610) analyses met criteria for blanks and surrogate recoveries. The samples MW91129-1, MW9160-1, MW6024-1, MW6001, MW4204, and UST-ER1 exceeded holding times criteria. All the compounds were flagged in the associated samples "UJ" along with the detection limit due to this problem. The compounds naphthalene, acenaphthylene, acenaphthene, benzo-(a)-anthracene, chrysene, and dibenzo(a,h)anthracene/ indeno(1,2,3-cd)pyrene had low percent recovery in the matrix spike/matrix spike duplicate. These compounds were flagged "J" due to this problem in sample MW4204 (the spiked sample). In addition, the RPDs for all the

compounds in the matrix spike/matrix spike duplicate did not meet criteria. This problem require no flagging activity.

ENGINEERING-SCIENCE, INC.

J. A. Banton
Chemist, ES Atlanta



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

March 20, 1992

Ola Awosika
ENGINEERING SCIENCE, INC.
57 Executive Park South, Suite 590
Atlanta, GA 30329

Project: AT 510
SWLO Episode #: 8794.01 - 8794.10

Dear Mr. Awosika:

Enclosed we are submitting the analytical results for your samples received in our laboratory on February 20, 1992 for the above-captioned project.

If, in your review, you should have any questions or require additional information, please call.

Sincerely,

Daryl Alstatt

Daryl Alstatt
Project Officer

DA/rb

Enclosures

1700 WEST ALBANY • BROKEN ARROW, OK 74012
(918) 251-2858 • FAX (918) 251-2599

ENGINEERING-SCIENCE
CHAIN OF CUSTODY RECORD

ES JOB NO.	PROJECT NAME/LOCATION	SHIP TO:
AT51N. 04	Eglin AFB / UST Sites	Southwest Labs

SAMPLER(S): (Signature) Ross Surrency

PRESERVATIVE REQUIRED: H_2SO_4 — / HCL / HCL / HNO_3 —

ANALYSES REQUIRED

DATE	TIME	SAMPLE DESCRIPTION	NUMBER OF CONTAINERS	TPH	1,2-DCA	BETX	EDB	MTBE	Lead	PAH				MATRIX	REMARKS
2-19	1010	MW91129 -1	6		X	X	X	X						water	Method
	1010	MW91601-1	6		X	X	X	X							TPH E418.1
	1135	UST-TB1 trip blank	2		X	X	X	X							1,2-DCA SW5030 8010
	1230	MW6024-1	6		X	X	X	X							BETX SW5030 8020
	1345	MW6001 -1	6		X	X	X	X							EDB E504
	1520	MW4204 -1 MS/MSD	21	X	X	X	X	X	X	X					MTBE SW5030 8020
	1620	UST-ER1	9/8	X	X	X	X	X	X	X					Pb SW3005 7421 (one vial broken)
															PAH E610

RECEIVED MAR 0 3 1992

Relinquished by: (Signature)	Date/Time	Recieved for Laboratory by: (Signature)	Date/Time	Remarks:
Ross Surrency	2-19-92 1800	David [illegible]	02/20/92 0900	Airbill #: 1833686724

Distribution: Original Accompanies Shipment, Copies to Coordinator Field Files

ENGINEERING-SCIENCE

CHAIN OF CUSTODY RECORD

ES JOB NO.	PROJECT NAME/LOCATION	SHIP TO:
AT510.04	Eglin AFB / UST sites	Southwest Labs

SAMPLER(S): (Signature)

Ron Surveyor

PRESERVATIVE REQUIRED: H_2SO_4 – | HCL – | HCL HNO_3 –

ANALYSES REQUIRED: TPH | 1,2-DCA | BETX | EDB | MTBE | lead | PAH

DATE	TIME	SAMPLE DESCRIPTION	NUMBER OF CONTAINERS	MATRIX	REMARKS
2-19	1010	MW9129-1	3	water	Method
	1010	MW9160I-1	3		TPH E418.1
	1230	MW6024-1	3		Pb SW3005/7421
↓	1345	MW6001-1	3	↓	PAH E610

RECEIVED MAR 05 1992

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:
Ron Surveyor	2-19-92 1800	David Wright	02/20/92 0900	Airbill #: 1933686724

Distribution: Original Accompanies Shipment Copies to Coordinator Field Files

B-5

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01 - .10HV

DATE: 03-19-92

SAMPLE MATRIX: WATER
SWLO #: 8794.01 - .10
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-24-92
PROJECT: AT 510

METHOD REFERENCE FOR 1,2-DICHLOROETHANE: EPA 601

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW91129-1	8794.01	1.0	ug/L	ND
MW91601-1	8794.02	1.0	ug/L	ND
UST-TB1	8794.03	1.0	ug/L	ND
MW6024-1	8794.04	1.0	ug/L	ND
MW6001-1	8794.05	1.0	ug/L	ND
MW4204-1	8794.06	1.0	ug/L	ND
UST-ER1	8794.10	1.0	ug/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01 - .10HVS

DATE: 03-19-92

SWLO # 8794
METHOD REFERENCE: EPA 601
PROJECT: AT 510

HALOGENATED VOLATILE QA/QC SURROGATE RECOVERIES

SAMPLE I.D.	COMPOUND	PERCENT RECOVERY
8794.01	CIS-1,2-DICHLOROETHENE	96%
8794.02	CIS-1,2-DICHLOROETHENE	97%
8794.03	CIS-1,2-DICHLOROETHENE	103%
8794.04	CIS-1,2-DICHLOROETHENE	106%
8794.05	CIS-1,2-DICHLOROETHENE	105%
8794.06	CIS-1,2-DICHLOROETHENE	96%
8794.10	CIS-1,2-DICHLOROETHENE	108%

D = SURROGATE DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01 - .10EDB

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.01 - .10
METHOD REFERENCE: EPA 504.1
DATE SUBMITTED: 02-20-92
DATE EXTRACTED: 02-24-92
PROJECT: AT 510

RESULTS REPORTED IN ug/L or PARTS PER BILLION

ETHYLENE DIBROMIDE

CLIENT ID	SWLO I.D	DET. LIMIT	RESULTS	DATE ANALYZED
MW91129-1	8794.01	0.01	ND	02-24-92
MW91601-1	8794.02	0.01	ND	02-24-92
UST-TB1	8794.03	0.01	ND	02-24-92
MW6024-1	8794.04	0.01	ND	02-25-92
MW6001-1	8794.05	0.01	ND	02-25-92
MW4204-1	8794.06	0.01	ND	02-25-92
UST-ER1	8794.10	0.01	ND	02-25-92

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01 - .10EDBSR

DATE: 03-20-92

SWLO # 8794
METHOD REFERENCE: EPA 504.1
PROJECT: AT 510

ETHYLENE DIBROMIDE QA/QC SURROGATE RECOVERIES

SAMPLE I.D.	COMPOUND	PERCENT RECOVERY
8794.01	1,1,2,2-TETRACHLOROETHANE	108%
8794.02	1,1,2,2-TETRACHLOROETHANE	109%
8794.03	1,1,2,2-TETRACHLOROETHANE	106%
8794.04	1,1,2,2-TETRACHLOROETHANE	107%
8794.05	1,1,2,2-TETRACHLOROETHANE	111%
8794.06	1,1,2,2-TETRACHLOROETHANE	106%
8794.10	1,1,2,2-TETRACHLOROETHANE	108%

D = SURROGATE DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01 - .10TPH

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.01 - .10
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-25-92
PROJECT: AT 510

METHOD REFERENCE FOR TOTAL PETROLEUM HYDROCARBON: EPA 418.1

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW91129-1	8794.01	0.5	mg/L	ND
MW91601-1	8794.02	0.5	mg/L	ND
UST-TB1	8794.03	0.5	mg/L	ND
MW6024-1	8794.04	0.5	mg/L	ND
MW6001-1	8794.05	0.5	mg/L	ND
MW4204-1	8794.06	0.5	mg/L	ND
MW4204-1 DUP	8794.07	0.5	mg/L	28
MW4204-1 MS	8794.08	0.5	mg/L	25
UST-ER1	8794.10	0.5	mg/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01 - .10LD

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.01 - .10
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 03-04-92
PROJECT: AT 510

METHOD REFERENCE FOR LEAD: EPA 239.2

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW91129-1	8794.01	3.0	ug/L	26.6
MW91601-1	8794.02	3.0	ug/L	21.4
MW6024-1	8794.04	3.0	ug/L	10.2
MW6001-1	8794.05	3.0	ug/L	ND
MW4204-1	8794.06	3.0	ug/L	6.9 J
MW4204-1 DUP	8794.07	3.0	ug/L	8.0 J
MW4204-1 MS	8794.08	3.0	ug/L	16.5 J
UST-ER1	8794.10	3.0	ug/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.01
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-19-92
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW91129-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 94%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.01P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.01
DATE SUBMITTED: 02-20-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW91129-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	102.3%
p-TERPHENYL	88%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.02BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.02
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-19-92
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW91601-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 96%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
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SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.02P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.02
DATE SUBMITTED: 02-20-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW91601-1

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	95.8%
p-TERPHENYL	84.8%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.03BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.03
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-19-92
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: UST-TB1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 91%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.04BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.04
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-19-92
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW6024-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 84%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
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SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.04P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.04
DATE SUBMITTED: 02-20-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW6024-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	76.5%
p-TERPHENYL	82.2%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.05BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.05
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-19-92
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW6001-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 90%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.05P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.05
DATE SUBMITTED: 02-20-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW6001-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	59.1%
p-TERPHENYL	57.2%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.06BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.06
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-19-92
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW4204-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 82%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.06P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.06
DATE SUBMITTED: 02-20-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW4204-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	74.6%
p-TERPHENYL	80.0%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.10BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.10
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-19-92
DATE SUBMITTED: 02-20-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: UST-ER1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 84%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
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ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794.10P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794.10
DATE SUBMITTED: 02-20-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: UST-ER1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	87.9%
p-TERPHENYL	99.2%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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ANALYTICAL REPORT

ENGINEERING-SCIENCE INC.
57 EXECUTIVE PARK SOUTH
ATLANTA, GEORGIA 30392

REPORT: 8794

REPORT DATE: 03/13/92

SWLO IDENTIFICATION

SAMPLE NO.: 8794.01-8794.10
DATE RECEIVED: 02/20/92

QA/QC

DESCRIPTION		PARAMETER	RESULTS
METHOD BLANK	03/04/92	LEAD	< 3.0 ug/L
BLANK SPIKE	03/04/92	LEAD	96% RECOVERY
MATRIX SPIKE	MW204-1	LEAD	48% RECOVERY
DUPLICATE	MW204-1	LEAD	14.76% RPD

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794a

DATE: 03-19-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE ANALYZED : 02-24-92
METHOD REFERENCE: EPA 601
PROJECT: AT 510
SAMPLE ID: BLANK

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

HALOGENATED VOLATILES	DET. LIMIT	RESULTS
1,2-DICHLOROETHANE	1.0	ND

QA/QC SURROGATE RECOVERIES

CIS-1,2-DICHLOROETHENE (65%-135%)	94%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794b

DATE: 03-19-92

SAMPLE MATRIX: WATER
SWLO # 8794.08 - .09 (MS/MSD)
DATE ANALYZED : 02-24-92
METHOD REFERENCE: EPA 601
PROJECT: AT 510
SAMPLE ID: MW4202-1 (MS/MSD)

HALOGENATED VOLATILES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS PERCENT RECOVERY	AMT FOUND MSD CONC. (ug/L)	PERCENT RECOVERY MSD	PERCENT RPD
1,2-DICHLOROETHANE	20.0	0	17.2	86.0	18.4	92.0	6.7

SURROGATE RECOVERIES

MS	CIS-1,2-DICHLOROETHENE	100%
MSD	CIS-1,2-DICHLOROETHENE	97%

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794c

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
METHOD REFERENCE: EPA 602
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: BLANK

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	10.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 86%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794d

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 02-21-92
SWLO #: 8794 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: MW4204-1

BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
BENZENE	10.0	0	9.9	99.3%
TOLUENE	10.0	0	9.3	93.1%
ETHYLBENZENE	10.0	0	9.4	94.4%
TOTAL XYLENES	30.0	0	29.4	98.1%
MTBE	40.0	0	44.6	111.5%

	MATRIX SPIKE DUP NSD CONC. (ug/L)	PERCENT REC. (ug/L)	RECOVERY PERCENT DIFFERENCE
BENZENE	10.1	100.9%	1.60%
TOLUENE	9.5	95.4%	2.44%
ETHYLBENZENE	9.8	98.0%	3.74%
TOTAL XYLENES	30.4	101.3%	3.21%
MTBE	42.4	106.0%	5.1%

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794e

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
METHOD REFERENCE: EPA 504.1
DATE EXTRACTED: 02-24-92
DATE ANALYZED: 02-24-92
PROJECT: AT 510

RESULTS REPORTED IN ug/L or PARTS PER BILLION

PARAMETER	DET. LIMIT	RESULT
ETHYLENE DIBROMIDE	0.01	ND

QA/QC SURROGATE RECOVERY

1,1,2,2-TETRACHLOROETHANE 103%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794f

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794 LCS
PROJECT: AT 510

LABORATORY CONTROL SPIKE

	SPIKE CONC. (ug/L)	CONTROL SAMPLE CONC. (ug/L)*	LCS CONC. (ug/L)*	LCS PERCENT RECOVERY
ETHYLENE DIBROMIDE	1.65	0	1.67	101.5%

* = DILUTION FACTOR NOT APPLIED TO THESE CONCENTRATIONS

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794g

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO # 8794.08 - .09 (MS/MSD)
DATE EXTRACTED: 02-24-92
DATE ANALYZED : 02-25-92
METHOD REFERENCE: EPA 601
PROJECT: AT 510
SAMPLE ID: MW4202-1 (MS/MSD)

ETHYLENE DIBROMIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS PERCENT RECOVERY	AMT FOUND MSD CONC. (ug/L)	PERCENT RECOVERY MSD	PERCENT RPD
ETHYLENE DIBROMIDE	1.67	0	1.62	97	1.80	108	11

SURROGATE RECOVERIES

MS	CIS-1,2-DICHLOROETHENE	106%
MSD	CIS-1,2-DICHLOROETHENE	121%

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794h

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: WBLK022892-01

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/	1.0	ND
INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	90.7%
p-TERPHENYL	78.6%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794i

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8794 (MS/MSD)
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
PROJECT: AT 510
SAMPLE ID: MW4204-1 (MS/MSD)

WATER PAH MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/l)	AMT FOUND SAMPLE (ug/l)	AMT FOUND MS (ug/l)	MS PERCENT RECOVERY	AMT FOUND MSD (ug/l)	PERCENT RECOVERY MSD	PERCENT RPD
NAPTHALENE	10.0	0	7.6	76.2	10.6	106.2	33.0
ACENAPTHYLENE	10.0	0	7.9	79.0	10.8	108.0	30.9
ACENAPTHENE	10.0	0	7.9	78.8	10.8	107.9	31.1
FLUORENE	10.0	0	8.6	85.9	11.9	119.4	32.6
PHENANTHRENE	10.0	0	8.6	86.4	12.1	121.2	33.6
ANTHRACENE	10.0	0	8.7	87.4	11.9	118.5	30.3
FLUORANTHENE	10.0	0	8.4	84.1	11.5	115.4	31.4
PYRENE	10.0	0	8.4	84.2	11.7	117.4	32.9
BENZO-(A)-ANTHRANCENE	10.0	0	7.5	75.2	9.9	99.1	27.5
CHRYSENE	10.0	0	7.0	70.1	9.3	93.4	28.5
BENZO-(B)-FLUORANTHENE	10.0	0	8.1	81.1	10.8	107.7	28.2
BENZO-(K)-FLUORANTHENE	10.0	0	8.4	84.2	11.3	113.2	29.4
BENZO-(A)-PYRENE	10.0	0	8.4	84.2	11.1	110.6	27.1
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	20.0	0	8.3	41.3	11.7	58.5	34.5
BENZO(G,H,I)PERYLENE	10.0	0	8.4	83.9	12.0	119.5	35.1

QA/QC SURROGATE RECOVERIES

	MS	MSD
2-FLUOROBIPHENYL	76.7%	106.7%
p-TERPHENYL	91.7%	110.0%

*VALUES OUTSIDE OF QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794j

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE ANALYZED : 02-25-92
METHOD REFERENCE: EPA 418.1
PROJECT: AT 510
SAMPLE ID: WBLK02249201

RESULTS REPORTED IN mg/L OR Parts Per Billion (PPB)

PARAMETER	DET. LIMIT	RESULTS
TPH	0.5	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794k

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 02-25-92
SWLO #: 8794 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: MW4204-1

TPH MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
TPH	31.0	0	25.1	81.0%

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794k

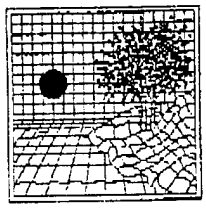
DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 02-25-92
SWLO #: 8794 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: MW4204-1

TPH MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
TPH	31.0	0	25.1	81.0%

	MSD CONC. (ug/L)*	MSD PERCENT RECOVERY	RECOVERY PERCENT DIFFERENCE
TPH	27.9	90%	10.6%



FAX NUMBER
918-251-2599

FAX COVER SHEET

DATE: 3-26-92

TO: NAME: Andy Batton
CLIENT: Engineering Science, Inc.
SUBJECT: Corrected Report
FAX # 1-404-325-8369

FROM: NAME: Daryl Alstatt
LABORATORY: SWLO

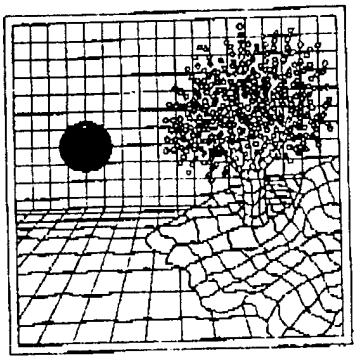
COMMENTS:
__ For your comments
__ Please call me about this
__ Information only
__ As you requested
X As we discussed
__ Review and forward

NUMBER OF PAGES: 3 (Including this cover page)

SPECIAL INSTRUCTIONS:

Andy,
The originals will follow by mail to Mr. Awosika
Daryl
/lb

If you have any problems with this transmission
please call _____ at (918)251-2858.



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

March 26, 1992

Ola Awosika
ENGINEERING SCIENCE, INC.
57 Executive Park South, Suite 590
Atlanta, GA 30329

Project: AT 510
SWLO Episode #: 8794.01 - 8794.10

Dear Mr. Awosika:

Enclosed we are submitting the corrected TPH MS/MSD report for your samples received in our laboratory on February 20, 1992 for the above-captioned project. We regret any inconvenience this may have caused.

If, in your review, you should have any questions or require additional information, please call.

Sincerely,

Daryl Alstatt
Project Officer

DA/rb

Enclosures

1700 WEST ALBANY • BROKEN ARROW, OK 74012
(918) 251-2858 • FAX (918) 251-2599

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8794k

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 02-25-92
SWLO #: 8794 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: MW4204-1

TPH MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
TPH	31.0	0	25.1	81.0%

	MSD CONC. (ug/L)*	MSD PERCENT RECOVERY	RECOVERY PERCENT DIFFERENCE
TPH	27.9	90%	10.6%

ANALYTICAL DATA
BATCH 8803

MEMORANDUM

March 30, 1992

To: File

From: J. A. Banton

Subject: Eglin AFB, Job No. AT510.04
Data Review, UST Sites
Batch 8803

TPH (E418.1) analyses met QA/QC criteria for holding times, blanks, and matrix spike/matrix spike duplicates.

BETX and MTBE (E602) analyses met QA/QC criteria for holding times, blanks, matrix spike/matrix spike duplicate, and surrogate recoveries. Samples MW3021-1 and UST-ER2 had positive results that were not confirmed by a second column analysis. These positive results were flagged "JN" due to this problem. Benzene results failed to meet USAF maximum allowable detection limits; however, the detection limits did meed Florida petroleum contamination site clean-up criteria maximum allowable detection limits.

EDB (E504) analyses met QA/QC criteria for holding times, LCS, matrix spike/matrix spike duplicate, and surrogate recoveries.

Lead analyses met QA/QC criteria for holding times and matrix spike/matrix spike duplicates.

1,2-DCE (E601) analyses met QA/QC criteria for holding times, blanks, matrix spike/matrix spike duplicate, and surrogate recoveries.

AT510\923J189

PAH (E610) analyses met criteria for blanks and surrogate recoveries. Samples MW3021-1, MW981-1, MW981-1, MW792-1, and UST-ER2 exceeded holding time criteria. All compounds in the associated samples were flagged to this problem.

ENGINEERING-SCIENCE, INC.

J. A. Banton
Chemist, ES Atlanta

AT510\923J189

ENGINEERING-SCIENCE

CHAIN OF CUSTODY RECORD

ES JOB NO.	PROJECT NAME/LOCATION	SHIP TO:
AT310.04	Eglin AFB / UST Sites	Southwest Lab

SAMPLER(S): (Signature)

Thom Surovcy

PRESERVATIVE REQUIRED: H_2SO_4, HCl, HCl, HNO$_3$, —

ANALYSES REQUIRED: TPH, 1,2-DCA, BETX, EDB, MTBE, Lead, PAH

DATE	TIME	SAMPLE DESCRIPTION	NUMBER OF CONTAINERS	MATRIX	REMARKS
2-20-92	0835	MW302I-1	9	water	Analyte / Method
	1005	UST-TB2 Trip Blank	2		TPH E418.1
	1015	MW98I-1	9		1,2-DCA SW5030 8010 one vial broke, DUP 02/21/92
	1125	MW792-1	9		BETX SW5030 8020
	1200	UST-ER2	9		EDB E504
					MTBE SW5030 8020
					Lead SW3005 7421
					PAH E610

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Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:
Thom Surovcy	2-20-92 1400	David Wright	02/21/92 0900	Airbill #: 1833686735

Distribution: Original Accompanies Shipment. Copies to Coordinator Field Files

B-42

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01 - .05HV

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.01 - .05
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 02-24-92
PROJECT: AT 510

METHOD REFERENCE FOR 1,2-DICHLOROETHANE: EPA 601

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW3021-1	8803.01	1.0	ug/L	ND
UST-TB2	8803.02	1.0	ug/L	ND
MW981-1	8803.03	1.0	ug/L	ND
MW792-1	8803.04	1.0	ug/L	ND
UST-ER2	8803.05	1.0	ug/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01 - .05HVS

DATE: 03-20-92

SWLO # 8803
METHOD REFERENCE: EPA 601
PROJECT: AT 510

HALOGENATED VOLATILE QA/QC SURROGATE RECOVERIES

SAMPLE I.D.	COMPOUND	PERCENT RECOVERY
8803.01	CIS-1,2-DICHLOROETHENE	106%
8803.02	CIS-1,2-DICHLOROETHENE	100%
8803.03	CIS-1,2-DICHLOROETHENE	97%
8803.04	CIS-1,2-DICHLOROETHENE	105%
8803.05	CIS-1,2-DICHLOROETHENE	94%

RECEIVED 3/23/1992

D = SURROGATE DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01 - .05EDB

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.01 - .05
METHOD REFERENCE: EPA 504.1
DATE SUBMITTED: 02-21-92
DATE EXTRACTED: 02-24-92
DATE ANALYZED: 02-25-92
PROJECT: AT 510

RESULTS REPORTED IN ug/L or PARTS PER BILLION

ETHYLENE DIBROMIDE

CLIENT ID	SWLO I.D	DET. LIMIT	RESULTS
MW3024-1	8803.01	0.01	ND
UST-TB2	8803.02	0.01	ND
MW981-1	8803.03	0.01	ND
MW792-1	8803.04	0.01	ND
UST-ER2	8803.05	0.01	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01 - .05EDBSR

DATE: 03-20-92

SWLO # 8803
METHOD REFERENCE: EPA 504.1
PROJECT: AT 510

ETHYLENE DIBROMIDE QA/QC SURROGATE RECOVERIES

SAMPLE I.D.	COMPOUND	PERCENT RECOVERY
8803.01	1,1,2,2-TETRACHLOROETHANE	109%
8803.02	1,1,2,2-TETRACHLOROETHANE	109%
8803.03	1,1,2,2-TETRACHLOROETHANE	110%
8803.04	1,1,2,2-TETRACHLOROETHANE	110%
8803.05	1,1,2,2-TETRACHLOROETHANE	108%

D = SURROGATE DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

RECEIVED MAR 23 1992

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01 - .05LD

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.01 - .05
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 03-04-92
PROJECT: AT 510

METHOD REFERENCE FOR LEAD: EPA 239.2

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW3021-1	8803.01	3.0	ug/L	ND
MW981-1	8803.03	3.0	ug/L	5.4
MW792-1	8803.04	3.0	ug/L	142
UST-ER2	8803.05	3.0	ug/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01 - .05TPH

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.01 - .05
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 02-25-92
PROJECT: AT 510

METHOD REFERENCE FOR TOTAL PETROLEUM HYDROCARBON: EPA 418.1

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW3021-1	8803.01	0.5	mg/L	ND
MW981-1	8803.03	0.5	mg/L	0.6
MW792-1	8803.04	0.5	mg/L	ND
UST-ER2	8803.05	1.0	mg/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.01
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-20-92
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW3021-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	0.5 J
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 82%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.01
DATE SUBMITTED: 02-21-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW3021-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	2.0
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/	1.0	ND
INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	82.6%
p-TERPHENYL	72%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.01PC

DATE: 03-20-92

Confirmed Sample

SAMPLE MATRIX: WATER
SWLO #: 8803.01
DATE SUBMITTED: 02-21-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-19-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW3021-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	2.8	ND J
ACENAPHTHYLENE	3.6	ND J
ACENAPHTHENE	4.3	ND J
FLUORENE	0.3	ND J
PHENANTHRENE	0.9	ND J
ANTHRACENE	1.1	ND J
FLUORANTHENE	0.3	ND J
PYRENE	0.5	ND J
BENZO(A)ANTHRACENE	0.02	ND J
CHRYSENE	0.2	ND J
BENZO(B)FLUORANTHENE	0.03	ND J
BENZO(K)FLUORANTHENE	0.03	ND J
BENZO(A)PYRENE	0.03	ND J
DIBENZO(A,H)ANTHRACENE/	0.05	ND J
INDENO(1,2,3-CD)PYRENE **	0.08	ND J
BENZO(G,H,I)PERYLENE	0.12	ND J

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	48%
p-TERPHENYL	36%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
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** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.02BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.02
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-20-92
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: UST-TB2

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 86%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.03BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.03
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-20-92
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW981-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 87%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
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J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.03P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.03
DATE SUBMITTED: 02-21-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW981-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	106.7%
p-TERPHENYL	105.1%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.04BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.04
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-20-92
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: MW792-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 85%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.04P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.04
DATE SUBMITTED: 02-21-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW792-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	103.0%
p-TERPHENYL	105.7%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.05BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.05
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-20-92
DATE SUBMITTED: 02-21-92
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: UST-ER2

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	0.7 J
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 82%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803.05P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803.05
DATE SUBMITTED: 02-21-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: UST-ER2

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	105.7%
p-TERPHENYL	106.6%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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ANALYTICAL REPORT

ENGINEERING-SCIENCE INC.
57 EXECUTIVE PARK SOUTH
ATLANTA, GA 30329

REPORT: 8803

REPORT DATE: 03/16/92

SWLO IDENTIFICATION

SAMPLE NO.: 8803.01-8803.05
DATE RECEIVED: 02/21/92

DESCRIPTION		QA/QC PARAMETER	RESULTS
METHOD BLANK	03/04/92	LEAD	< 3.0 ug/L
BLANK SPIKE	03/04/92	LEAD	96% RECOVERY

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803a

DATE: 03-19-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE ANALYZED : 02-24-92
METHOD REFERENCE: EPA 601
PROJECT: AT 510
SAMPLE ID: BLANK

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

HALOGENATED VOLATILES	DET. LIMIT	RESULTS
1,2-DICHLOROETHANE	1.0	ND

QA/QC SURROGATE RECOVERIES

CIS-1,2-DICHLOROETHENE (65%-135%)	94%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803b

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO # 8803 (MS/MSD)
DATE ANALYZED : 02-24-92
METHOD REFERENCE: EPA 601
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

HALOGENATED VOLATILES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS PERCENT RECOVERY	AMT FOUND MSD CONC. (ug/L)	PERCENT RECOVERY MSD	PERCENT RPD
1,2-DICHLOROETHANE	20.0	0	17.2	86.0	18.4	92.0	6.7

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803c

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
METHOD REFERENCE: EPA 602
DATE ANALYZED: 02-21-92
PROJECT: AT 510
SAMPLE ID: BLANK

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	10.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 86%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803d

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 02-21-92
SWLO #: 8803 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
BENZENE	10.0	0	9.9	99.3%
TOLUENE	10.0	0	9.3	93.1%
ETHYLBENZENE	10.0	0	9.4	94.4%
TOTAL XYLENES	30.0	0	29.4	98.1%
MTBE	40.0	0	44.6	111.5%

	MATRIX SPIKE DUP NSD CONC. (ug/L)	PERCENT REC. (ug/L)	RECOVERY PERCENT DIFFERENCE
BENZENE	10.1	100.9%	1.60%
TOLUENE	9.5	95.4%	2.44%
ETHYLBENZENE	9.8	98.0%	3.74%
TOTAL XYLENES	30.4	101.3%	3.21%
MTBE	42.4	106.0%	5.1%

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803e

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
METHOD REFERENCE: EPA 504.1
DATE EXTRACTED: 02-24-92
DATE ANALYZED: 02-24-92
PROJECT: AT 510

RESULTS REPORTED IN ug/L or PARTS PER BILLION

PARAMETER	DET. LIMIT	RESULT
ETHYLENE DIBROMIDE	0.01	ND

QA/QC SURROGATE RECOVERY

1,1,2,2-TETRACHLOROETHANE 103%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803f

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-19-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: METHOD WATER BLANK Q22892-01

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	2.9	ND
ACENAPHTHYLENE	3.7	ND
ACENAPHTHENE	4.5	ND
FLUORENE	0.3	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.1	ND
FLUORANTHENE	0.3	ND
PYRENE	0.5	ND
BENZO(A)ANTHRACENE	0.02	ND
CHRYSENE	0.2	ND
BENZO(B)FLUORANTHENE	0.03	ND
BENZO(K)FLUORANTHENE	0.03	ND
BENZO(A)PYRENE	0.03	ND
DIBENZO(A,H)ANTHRACENE/	0.05	ND
INDENO(1,2,3-CD)PYRENE **	0.08	ND
BENZO(G,H,I)PERYLENE	0.13	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	50%
p-TERPHENYL	43%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803g

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: WBLK022892-01

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/	1.0	ND
INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	90.7%
p-TERPHENYL	78.6%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803h

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8803 (MS/MSD)
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

WATER PAH MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/l)	AMT FOUND SAMPLE (ug/l)	AMT FOUND MS (ug/l)	MS PERCENT RECOVERY	AMT FOUND MSD (ug/l)	PERCENT RECOVERY MSD	PERCENT RPD
NAPTHALENE	10.0	0	7.6	76.2	10.6	106.2	33.0
ACENAPTHYLENE	10.0	0	7.9	79.0	10.8	108.0	30.9
ACENAPTHENE	10.0	0	7.9	78.8	10.8	107.9	31.1
FLUORENE	10.0	0	8.6	85.9	11.9	119.4	32.6
PHENANTHRENE	10.0	0	8.6	86.4	12.1	121.2	33.6
ANTHRACENE	10.0	0	8.7	87.4	11.9	118.5	30.3
FLUORANTHENE	10.0	0	8.4	84.1	11.5	115.4	31.4
PYRENE	10.0	0	8.4	84.2	11.7	117.4	32.9
BENZO-(A)-ANTHRANCENE	10.0	0	7.5	75.2	9.9	99.1	27.5
CHRYSENE	10.0	0	7.0	70.1	9.3	93.4	28.5
BENZO-(B)-FLUORANTHENE	10.0	0	8.1	81.1	10.8	107.7	28.2
BENZO-(K)-FLUORANTHENE	10.0	0	8.4	84.2	11.3	113.2	29.4
BENZO-(A)-PYRENE	10.0	0	8.4	84.2	11.1	110.6	27.1
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	20.0	0	8.3	41.3	11.7	58.5	34.5
BENZO(G,H,I)PERYLENE	10.0	0	8.4	83.9	12.0	119.5	35.1

QA/QC SURROGATE RECOVERIES

	MS	MSD
2-FLUOROBIPHENYL	76.7%	106.7%
p-TERPHENYL	91.7%	110.0%

*VALUES OUTSIDE OF QC LIMITS

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803i

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE ANALYZED : 02-25-92
METHOD REFERENCE: EPA 418.1
PROJECT: AT 510
SAMPLE ID: WBLK02249201

RESULTS REPORTED IN mg/L OR Parts Per Billion (PPB)

PARAMETER	DET. LIMIT	RESULTS
TPH	0.5	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

B-EY

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8803k

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 02-25-92
SWLO #: 8803 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

TPH MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
TPH	20.0	0	15.6	78.0%

	MSD CONC. (mg/L)*	MSD PERCENT RECOVERY	RECOVERY PERCENT DIFFERENCE
TPH	16.0	80%	2.5%

ANALYTICAL DATA
BATCH 8819

MEMORANDUM

March 30, 1992

To: File

From: J. A. Banton

Subject: Eglin AFB, Job No. AT510.04
Data Review, UST Sites
Batch 8819

TPH (E418.1) analyses met QA/QC criteria for holding times, blanks, and matrix spike/matrix spike duplicate.

BETX and MTBE (E602) analyses met QA/QC criteria for holding times, blanks, matrix spike/matrix spike duplicate, and surrogate recoveries. Benzene results failed to meet USAF maximum allowable detection limits; however, the detection limits did meet Florida petroleum contamination site clean-up criteria maximum allowable detection limits.

EDB (E504) analyses met QA/QC criteria for holding times, LCS, matrix spike/matrix spike duplicate, and surrogate recoveries.

Lead analyses met QA/QC criteria for holding times and matrix spike/matrix spike duplicates.

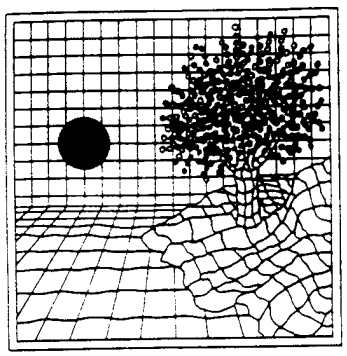
1,2-DCE (E601) analyses met QA/QC criteria for holding times, blanks, matrix spike/spike matrix duplicate, and surrogate recoveries.

PAH (E610) analyses met criteria for holding times, blanks, and surrogate recoveries.

ENGINEERING-SCIENCE, INC.

J. A. Banton
Chemist, ES Atlanta

AT510\923J189



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

March 20, 1992

Ola Awosika
ENGINEERING SCIENCE, INC.
57 Executive Park South, Suite 590
Atlanta, GA 30329

Project: AT 510
SWLO Episode #: 8819.01 - 8819.02

Dear Mr. Awosika:

Enclosed we are submitting the analytical results for your samples received in our laboratory on February 22, 1992 for the above-captioned project.

If, in your review, you should have any questions or require additional information, please call.

Sincerely,

Daryl Alstatt

Daryl Alstatt
Project Officer

DA/rb

Enclosures

1700 WEST ALBANY • BROKEN ARROW, OK 74012
(918) 251-2858 • FAX (918) 251-2599

ENGINEERING-SCIENCE

CHAIN OF CUSTODY RECORD

ES JOB NO.	PROJECT NAME/LOCATION
AT510.04	Eglin AFB / UST Sites

SAMPLER(S): (Signature)

Ron Surveyor

PRESERVATIVE REQUIRED: H_2SO_4 / HCl / HCl / HNO_3 /

ANALYSES REQUIRED: TPH / 1,2-DCA / BETX / EDB / MTBE / Lead / PAH

SHIP TO: Southwest Labs

DATE	TIME	SAMPLE DESCRIPTION	NUMBER OF CONTAINERS	MATRIX	REMARKS
2-21-92	0915	MW9990-1	9	water	Analyte / Method
"	0930	UST-TB3 Trip Blank	2	water	TPH E418.1
					1,2-DCA SW5030 8010
					BETX SW5030 8020
					EDB E504
					MTBE SW5030 8020
					Lead SW3005 7421
					PAH E610

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:
Ron Surveyor	2-21-92	M Hamby	2/22/92 1150	Airbill #: 1993015006

Distribution: Original Accompanies Shipment. Copies to Coordinator Field Files

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SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01 - .02HV

DATE: 03-19-92

SAMPLE MATRIX: WATER
SWLO #: 8819.01 - .02
DATE SUBMITTED: 02-22-92
DATE ANALYZED: 02-26-92
PROJECT: AT 510

METHOD REFERENCE FOR 1,2-DICHLOROETHANE: EPA 601

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW9990-1	8819.01	1.0	ug/L	ND
UST-TB3 TRIP BLANK	8819.02	1.0	ug/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01 - .02HVS

DATE: 03-20-92

SWLO # 8819
METHOD REFERENCE: EPA 601
PROJECT: AT 510

HALOGENATED VOLATILE QA/QC SURROGATE RECOVERIES

SAMPLE I.D.	COMPOUND	PERCENT RECOVERY
8819.01	CIS-1,2-DICHLOROETHENE	96%
8819.02	CIS-1,2-DICHLOROETHENE	94%

D = SURROGATE DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01 - .02EDB

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8819.01 - .02
METHOD REFERENCE: EPA 504.1
DATE SUBMITTED: 02-22-92
DATE EXTRACTED: 02-24-92
DATE ANALYZED: 02-25-92
PROJECT: AT 510

RESULTS REPORTED IN ug/L or PARTS PER BILLION

ETHYLENE DIBROMIDE

CLIENT ID	SWLO I.D	DET. LIMIT	RESULTS
MW9990-1	8819.01	0.01	ND
MW91601-1	8819.02	0.01	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01 - .02EDBSR

DATE: 03-20-92

SWLO # 8819
METHOD REFERENCE: EPA 504.1
PROJECT: AT 510

ETHYLENE DIBROMIDE QA/QC SURROGATE RECOVERIES

SAMPLE I.D.	COMPOUND	PERCENT RECOVERY
8819.01	1,1,2,2-TETRACHLOROETHANE	109%
8819.02	1,1,2,2-TETRACHLOROETHANE	112%

D = SURROGATE DILUTED OUT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01TPH

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8819.01
DATE SUBMITTED: 02-22-92
DATE ANALYZED: 03-04-92
PROJECT: AT 510

METHOD REFERENCE FOR TOTAL PETROLEUM HYDROCARBON: EPA 418.1

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW9990-1	8819.01	1.0	mg/L	1.6

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01LD

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8819.01
DATE SUBMITTED: 02-22-92
DATE ANALYZED: 03-04-92
PROJECT: AT 510

METHOD REFERENCE FOR LEAD: EPA 239.2

CLIENT ID	SWLO I.D	DET. LIMIT	UNIT	RESULT
MW9990-1	8819.01	3.0	ug/L	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8819.01
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-21-92
DATE SUBMITTED: 02-22-92
DATE ANALYZED: 02-25-92
PROJECT: AT 510
SAMPLE ID: MW9990-1

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 79%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.01P

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8819.01
DATE SUBMITTED: 02-22-92
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: MW9990-1

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/	1.0	ND
INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	102.0%
p-TERPHENYL	140.6%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819.02BX

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8819.02
METHOD REFERENCE: EPA 602
DATE SAMPLED : 02-21-92
DATE SUBMITTED: 02-22-92
DATE ANALYZED: 02-25-92
PROJECT: AT 510
SAMPLE ID: UST-TB3 TRIP BLANK

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	1.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 90%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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ANALYTICAL REPORT

ENGINEERING-SCIENCE INC.
57 EXECUTIVE PARK SOUTH
ATLANTA, GA 30329

REPORT: 8819

REPORT DATE: 03/16/92

SWLO IDENTIFICATION

SAMPLE NO.: 8819.01-8819.02
DATE RECEIVED: 02/22/92

DESCRIPTION		QA/QC PARAMETER	RESULTS
METHOD BLANK	03/04/92	LEAD	< 3.0 ug/L
BLANK SPIKE	03/04/92	LEAD	96% RECOVERY

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819a

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE ANALYZED : 02-26-92
METHOD REFERENCE: EPA 601
PROJECT: AT 510
SAMPLE ID: BLANK

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

HALOGENATED VOLATILES	DET. LIMIT	RESULTS
1,2-DICHLOROETHANE	1.0	ND

QA/QC SURROGATE RECOVERIES

CIS-1,2-DICHLOROETHENE (65%-135%)	107%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2858

CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819b

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO # 8819 (MS/MSD)
DATE ANALYZED : 02-26-92
METHOD REFERENCE: EPA 601
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

HALOGENATED VOLATILES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MS CONC. (ug/L)	MS PERCENT RECOVERY	AMT FOUND MSD CONC. (ug/L)	PERCENT RECOVERY MSD	PERCENT RPD
1,2-DICHLOROETHANE	20.0	0	20.1	100.5	20.5	102.5	2.0

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819c

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
METHOD REFERENCE: EPA 602
DATE ANALYZED: 02-25-92
PROJECT: AT 510
SAMPLE ID: BLANK

PARAMETER	DET. LIMIT	UNIT	RESULTS
GAS CHROMATOGRAPHY			
BENZENE	1.0	ug/L	ND
TOLUENE	1.0	ug/L	ND
ETHYLBENZENE	1.0	ug/L	ND
XYLENES	1.0	ug/L	ND
MTBE	10.0	ug/L	ND

QA/QC SURROGATE RECOVERIES

4-BROMOFLUOROBENZENE (65-135%) 95%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS ON ORIGINAL RUN AND RERUN.
SW = TEST METHODS FOR EVALUATING SOLID WASTE, EPA PUBLICATION #SW846, THIRD EDITION, NOVEMBER 1986

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819d

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 02-25-92
SWLO #: 8819 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

BTEX MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
BENZENE	10.0	0	9.8	98.4%
TOLUENE	10.0	0	9.0	89.5%
ETHYLBENZENE	10.0	0	9.3	93.3%
TOTAL XYLENES	30.0	0	29.1	97.0%
MTBE	40.0	0	36.0	90.0%

	MATRIX SPIKE DUP NSD CONC. (ug/L)	PERCENT REC. (ug/L)	RECOVERY PERCENT DIFFERENCE
BENZENE	10.6	106.3%	7.72%
TOLUENE	9.1	90.8%	1.43%
ETHYLBENZENE	9.4	93.9%	0.64%
TOTAL XYLENES	29.4	97.9%	0.92%
MTBE	43.1	107.8%	18.0%

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819e

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
METHOD REFERENCE: EPA 504.1
DATE EXTRACTED: 02-24-92
DATE ANALYZED: 02-24-92
PROJECT: AT 510

RESULTS REPORTED IN ug/L or PARTS PER BILLION

PARAMETER	DET. LIMIT	RESULT
ETHYLENE DIBROMIDE	0.01	ND

QA/QC SURROGATE RECOVERY

1,1,2,2-TETRACHLOROETHANE 103%

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
EPA = #EPA600/4-79-020, MARCH 1985
SM = STANDARD METHOD, 16TH EDITION

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819f

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
METHOD REFERENCE: EPA 610
PROJECT: AT 510
SAMPLE ID: WBLK022892-01

RESULTS REPORTED IN ug/l OR Parts Per Billion (PPB)

POLYNUCLEAR AROMATIC HYDROCARBONS	DETECTION LIMIT	RESULTS
NAPHTHALENE	1.0	ND
ACENAPHTHYLENE	1.0	ND
ACENAPHTHENE	1.0	ND
FLUORENE	1.0	ND
PHENANTHRENE	1.0	ND
ANTHRACENE	1.0	ND
FLUORANTHENE	1.0	ND
PYRENE	1.0	ND
BENZO(A)ANTHRACENE	1.0	ND
CHRYSENE	1.0	ND
BENZO(B)FLUORANTHENE	1.0	ND
BENZO(K)FLUORANTHENE	1.0	ND
BENZO(A)PYRENE	1.0	ND
DIBENZO(A,H)ANTHRACENE/	1.0	ND
INDENO(1,2,3-CD)PYRENE **	1.0	ND
BENZO(G,H,I)PERYLENE	1.0	ND

QA/QC SURROGATE RECOVERIES

2-FLUOROBIPHENYL	90.7%
p-TERPHENYL	78.6%

ND = NONE DETECTED ABOVE QUANTITATION LIMIT
J = ESTIMATED VALUE: CONCENTRATION BELOW LIMIT OF QUANTITATION
B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS
** = THESE COMPOUNDS COELUTE (AS INDICATED IN METHOD 610).

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CLIENT: ENGINEERING SCIENCE, INC.
57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819g

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: 8819 (MS/MSD)
DATE EXTRACTED: 02-28-92
DATE ANALYZED : 03-06-92
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

WATER PAH MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	SPIKE ADDED (ug/l)	AMT FOUND SAMPLE (ug/l)	AMT FOUND MS (ug/l)	MS PERCENT RECOVERY	AMT FOUND MSD (ug/l)	PERCENT RECOVERY MSD	PERCENT RPD
NAPTHALENE	10.0	0	7.6	76.2	10.6	106.2	33.0
ACENAPTHYLENE	10.0	0	7.9	79.0	10.8	108.0	30.9
ACENAPTHENE	10.0	0	7.9	78.8	10.8	107.9	31.1
FLUORENE	10.0	0	8.6	85.9	11.9	119.4	32.6
PHENANTHRENE	10.0	0	8.6	86.4	12.1	121.2	33.6
ANTHRACENE	10.0	0	8.7	87.4	11.9	118.5	30.3
FLUORANTHENE	10.0	0	8.4	84.1	11.5	115.4	31.4
PYRENE	10.0	0	8.4	84.2	11.7	117.4	32.9
BENZO-(A)-ANTHRANCENE	10.0	0	7.5	75.2	9.9	99.1	27.5
CHRYSENE	10.0	0	7.0	70.1	9.3	93.4	28.5
BENZO-(B)-FLUORANTHENE	10.0	0	8.1	81.1	10.8	107.7	28.2
BENZO-(K)-FLUORANTHENE	10.0	0	8.4	84.2	11.3	113.2	29.4
BENZO-(A)-PYRENE	10.0	0	8.4	84.2	11.1	110.6	27.1
DIBENZO(A,H)ANTHRACENE/ INDENO(1,2,3-CD)PYRENE **	20.0	0	8.3	41.3	11.7	58.5	34.5
BENZO(G,H,I)PERYLENE	10.0	0	8.4	83.9	12.0	119.5	35.1

QA/QC SURROGATE RECOVERIES

*VALUES OUTSIDE OF QC LIMITS

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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819h

DATE: 03-20-92

SAMPLE MATRIX: WATER
SWLO #: METHOD BLANK
DATE ANALYZED : 03-04-92
METHOD REFERENCE: EPA 418.1
PROJECT: AT 510
SAMPLE ID: WBLK03039201

RESULTS REPORTED IN mg/L OR Parts Per Billion (PPB)

PARAMETER	DET. LIMIT	RESULTS
TPH	0.5	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT
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B = ANALYTE DETECTED IN BLANK AS WELL AS SAMPLE
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57 EXECUTIVE PARK SOUTH, SUITE 590
ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819i

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 03-04-92
SWLO #: 8819 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

TPH MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
TPH	20.0	0	15.2	76.0%

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ATLANTA, GA 30329
ATTN: OLA AWOSIKA

REPORT: 8819i

DATE: 03-20-92

SAMPLE MATRIX: WATER
DATE ANALYZED: 03-04-92
SWLO #: 8819 (MS/MSD)
PROJECT: AT 510
SAMPLE ID: CONFIDENTIAL ID

TPH MATRIX SPIKE/MATRIX SPIKE DUPLICATE

	SPIKE CONC. (ug/L)	SAMPLE CONC. (ug/L)	MATRIX SPIKE CONC. (ug/L)	PERCENT RECOVERY
TPH	20.0	0	15.2	76.0%

	MSD CONC. (ug/l)*	MSD PERCENT RECOVERY	RECOVERY PERCENT DIFFERENCE
TPH	16.0	80%	2.5%