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CONTAMINATION ASSESSMENT REPORT FOR BUILDING 340 NCBC GULFPORT MS
12/1/1991
ABB ENVIRONMENTAL

CONTAMINATION ASSESSMENT REPORT

**NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT NAVY EXCHANGE SERVICE STATION
BUILDING 340
GULFPORT, MISSISSIPPI**

UIC: N00204

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ACRONYMS, INITIALISMS, AND ABBREVIATIONS

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

ABB-ES	ABB Environmental Services Inc.
BDL	below detection limits
BETX	benzene, ethyl benzene, toluene, and xylenes
bls	below land surface
BM	Benchmark
CA	Contamination Assessment
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CFR	Code of Federal Regulations
CMWs	Compliance Monitoring Wells
CompQAPP	Comprehensive Quality Assurance Project Plan
CTO	Contract Task Order
°C	degrees Centigrade
EDB	ethylene dibromide
FDER	Florida Department of Environmental Regulation
ft/day	feet per day
ft ² /day	feet squared per day
GC	gas chromatograph
gpd/ft	gallons per day per foot
gpm/ft	gallons per minute per foot of drawdown
HSWA	Hazardous and Solid Waste Amendments of 1984
K	hydraulic conductivity
MDEQ	Mississippi Department of Environmental Quality
msl	mean sea level
MTBE	methyl tert butyl ether
NCBC	Naval Construction Battalion Center
NGVD	National Geodetic Vertical Datum
PAH	polynuclear aromatic hydrocarbons
POA	Plan of Action
ppb	parts per billion
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
SOUTHNAVFACENGCOM	Southern Division Naval Facilities Engineering Command
SouthDIV	Southern Division Naval Facilities Engineering Command
SPT	standard penetration test
SWDA	Solid Waste Disposal Act of 1965
TRPH	total recoverable petroleum hydrocarbons
µg/l	micrograms per liter
µmhos/cm	microohms/centimeter
UIC	uniform identification code
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
VOA	volatile organic aromatic

FOREWORD

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

The Navy's UST Program policy is to comply with all Federal, State, and local regulations pertaining to USTs. This report was prepared to satisfy the requirements of the Navy's UST Program relating to petroleum contamination in Mississippi's environment as a result of spills or leaking tanks or piping.

Questions regarding this report should be addressed to the Commanding Officer, Navy Construction Battalion Center (NCBC), Gulfport, Mississippi, or to Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Code 1823, at AUTOVON 563-0613 or 803-743-0613.

EXECUTIVE SUMMARY

The groundwater and soil contamination at the Naval Construction Battalion Center (NCBC) Base Exchange Service Station is in violation of USEPA, Code of Federal Regulations, Title 40, Part 280 (40 CFR 280) (*Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks*) and 40 CFR 281 (*Approval of State Underground Storage Tank Programs*) regulations for underground petroleum contamination.

For example, select monitoring wells had benzene contamination at 2,100 $\mu\text{g}/\ell$, 3,100 $\mu\text{g}/\ell$, and 8,200 $\mu\text{g}/\ell$. The regulatory standard for benzene is 1 $\mu\text{g}/\ell$. Also the total volatile organic aromatic (Total VOA) concentrations at the same locations are 2,400 $\mu\text{g}/\ell$, 5,260 $\mu\text{g}/\ell$, and 9,500 $\mu\text{g}/\ell$. The regulatory standard for Total VOA is 50 $\mu\text{g}/\ell$. Based on these and other findings, it is recommended that a Remedial Action Plan (RAP) be prepared to address the clean up of the contamination.

The contaminant plume based on laboratory analytical results for Total VOA is shown on the executive summary map on the following page and remains entirely on Navy property. The vertical extent of petroleum contamination, as defined by the deep well, does not appear to exceed 25 feet below land surface (bls). The contaminant plume is migratory downgradient (southward) and upgradient (northward) of the source.

The ungrouted fill ports of the USTs are believed to be the source of groundwater and soil contamination. Excess product contained in the tanker truck hose was allowed to drain into the fill port vault and percolate downward to the groundwater. This problem has been corrected. Also the contaminant contour map suggests that both the tanks and associated piping to the dispensing pumps at the pump islands have leaked.

1.0 INTRODUCTION

ABB Environmental Services Inc. (ABB-ES) was contracted by the Naval Facilities Engineering Command, Southern Division (SouthDIV) to perform a contamination assessment (CA) and submit a Contamination Assessment Report (CAR) for the Exchange Service Station at the Naval Construction Battalion Center (NCBC), Gulfport, Mississippi. The scope of services for the work is contained in CTO No. 12, the Plan of Action (POA) dated March 1991, and the Contamination Assessment Plan (CAP) dated August 22, 1991.

Two of the three underground storage tanks (USTs) at the Gulfport Navy Construction Battalion Center Exchange Service Station were precision tested and found to be leaking and were abandoned in place. The presence of petroleum product in one of the compliance monitoring wells confirmed the presence of groundwater contamination. The source of the contamination was believed to be a leaking storage tank system and non-sealed UST fill ports where excess product contained in the tanker truck delivery hose was allowed to drain into the fill port subsurface vault and percolate downward to the groundwater.

Upon completion of precision tank testing conducted on September 28, 1990, by a Navy subcontractor, two of the four underground storage tanks (USTs) at the station were found to be leaking. Groundwater contamination was confirmed in the fall of 1990 by visual identification of free product in compliance monitoring well GPT-T340-4 by Naval personnel. The assessment under this contract was conducted between August 19 and August 29, 1991, and included:

- advancing soil borings in select locations to aid in placement of monitoring wells,
- installing and sampling additional monitoring wells to assess the vertical and horizontal extent of petroleum contamination,
- collecting water level datum,
- conducting a potable well inventory on base within a 1/4-mile radius of the site,
- conducting slug testing on select wells to estimate aquifer characteristics, and
- reducing and analyzing all data gathered during the CA to complete a CAR.

The following sections of the report present the background information, data compilation, results, conclusions, and recommendations of the CAR. Investigative methodologies and procedures are contained in Appendix B.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION. NCBC is located in the western part of the city of Gulfport, Harrison County, Mississippi. Situated approximately 2 miles southwest of the Gulfport-Biloxi Regional Airport, the activity occupies 1,100 acres that lie immediately south of 28th Street (Figure 2-1). Approximately 4,000 military and 1,600 civilian personnel are assigned to or employed by the activity.

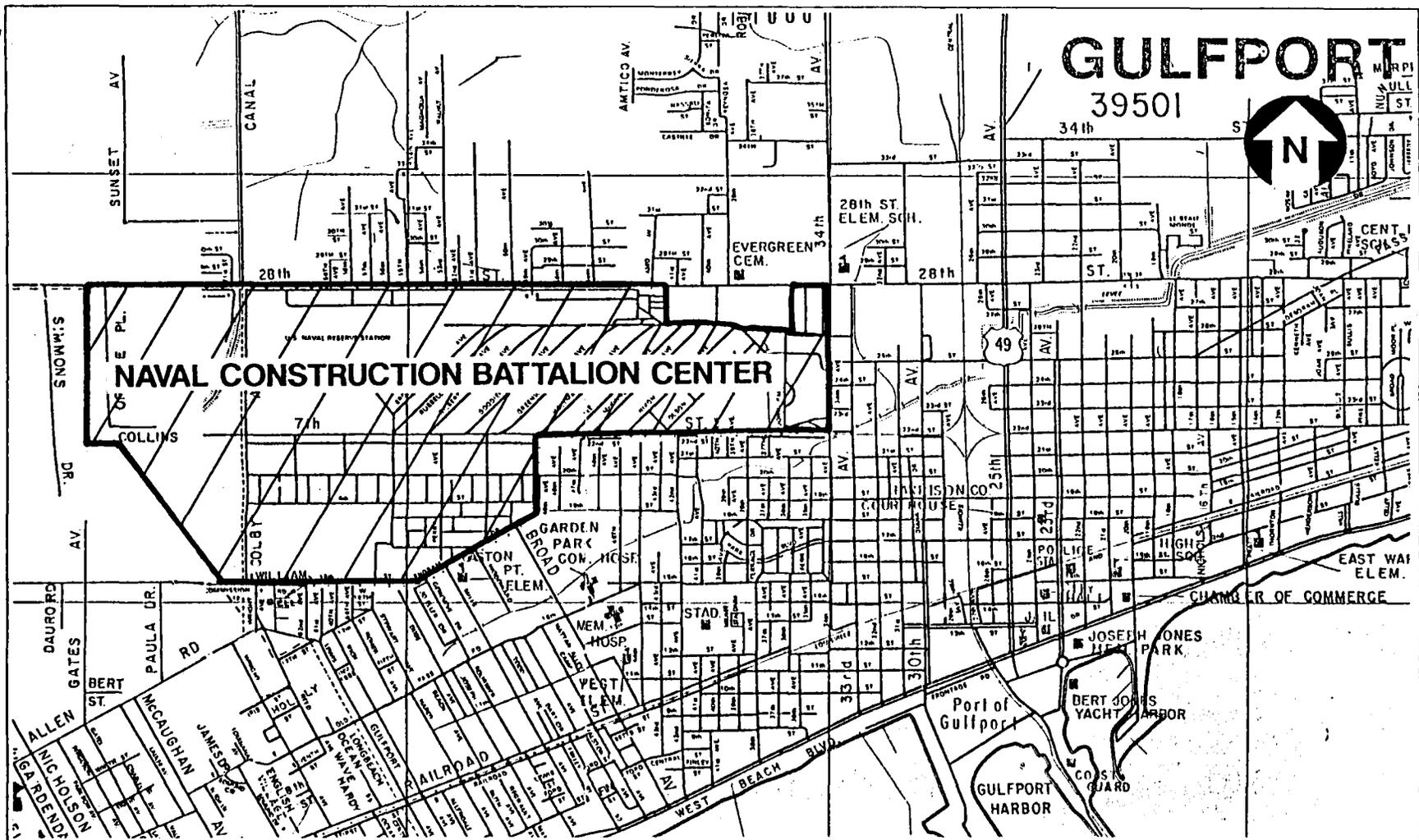
2.2 SITE HISTORY. The area of investigation is the Navy Exchange Service Station (Building 340) located at the southwest corner of the Second Street and Perry Avenue intersection. The site covers approximately a 200-foot by 200-foot area located approximately 1/4 mile from the activity's main gate, Gate No. 3 (Figure 2-2). Four steel, underground storage tanks (USTs) were installed at the site in 1973. Three of the underground tanks, 340-1, 340-2, and 340-3, each have a 10,000-gallon holding capacity. Leaded and unleaded gasoline products were stored and dispensed from these tanks. The fourth tank (340-4), used for waste oil storage, is a 280-gallon capacity steel UST.

In 1989, as part of a Navy Release Detection Program, six shallow compliance monitoring wells (GPT-T340-1 through GPT-T340-6) were installed at the site. Four of the these wells (GPT-T340-1 through GPT-T340-4) were installed in the area of the USTs. The other two wells (GPT-T340-5 and GPT-T340-6) were installed in the vicinity of the pump islands (Figure 2-3). During the installation of the monitoring wells at the UST area, free product was noticed in some of the boreholes. Subsequent excavation of the UST area indicated that soils around tank 340-1 were stained. These stains were noted in the soils and about midway down the tank. A sheen was also noted in a swale at the northwest corner of First Street and Perry Avenue. Currently only three of the original six compliance monitoring wells (CMW) exist at the site. The existing wells are GPT-T340-4, GPT-T340-5, and GPT-T340-6. The remaining three monitoring wells were destroyed in September 1990 during tank testing activities at the site.

Precision tank tests were performed on the three 10,000-gallon tanks on September 28, 1990 (Flint, personal communication, October 3, 1991). The test results indicated that tanks 340-1 and 340-3 were leaking. As a result, both tanks were emptied, triple rinsed, and filled with water. Currently, tank 340-2 is still in use.

Groundwater quality samples were collected from each of the six CMWs in 1989. At that time, well GPT-T340-4 had 1/8 inch of free product. No petroleum contaminants were detected in the other five CMWs. It was recommended verbally by Harding Lawson Associates that the site should be investigated further because very little was known about the extent of contamination.

During ABB-ES's site visit on February 27, 1991, well GPT-T340-4 was bailed and more than 18 inches of free product was discovered in the well. Recently, the Mississippi Department of Environmental Quality (MDEQ) has required NCBC Gulfport to bail well GPT-T340-4 on a daily basis in an attempt to remove the free product from the subsurface. The other two CMWs were clear of product.



GULFPORT

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SOURCE: CHAMPION MAP CORPORATION, 1989.

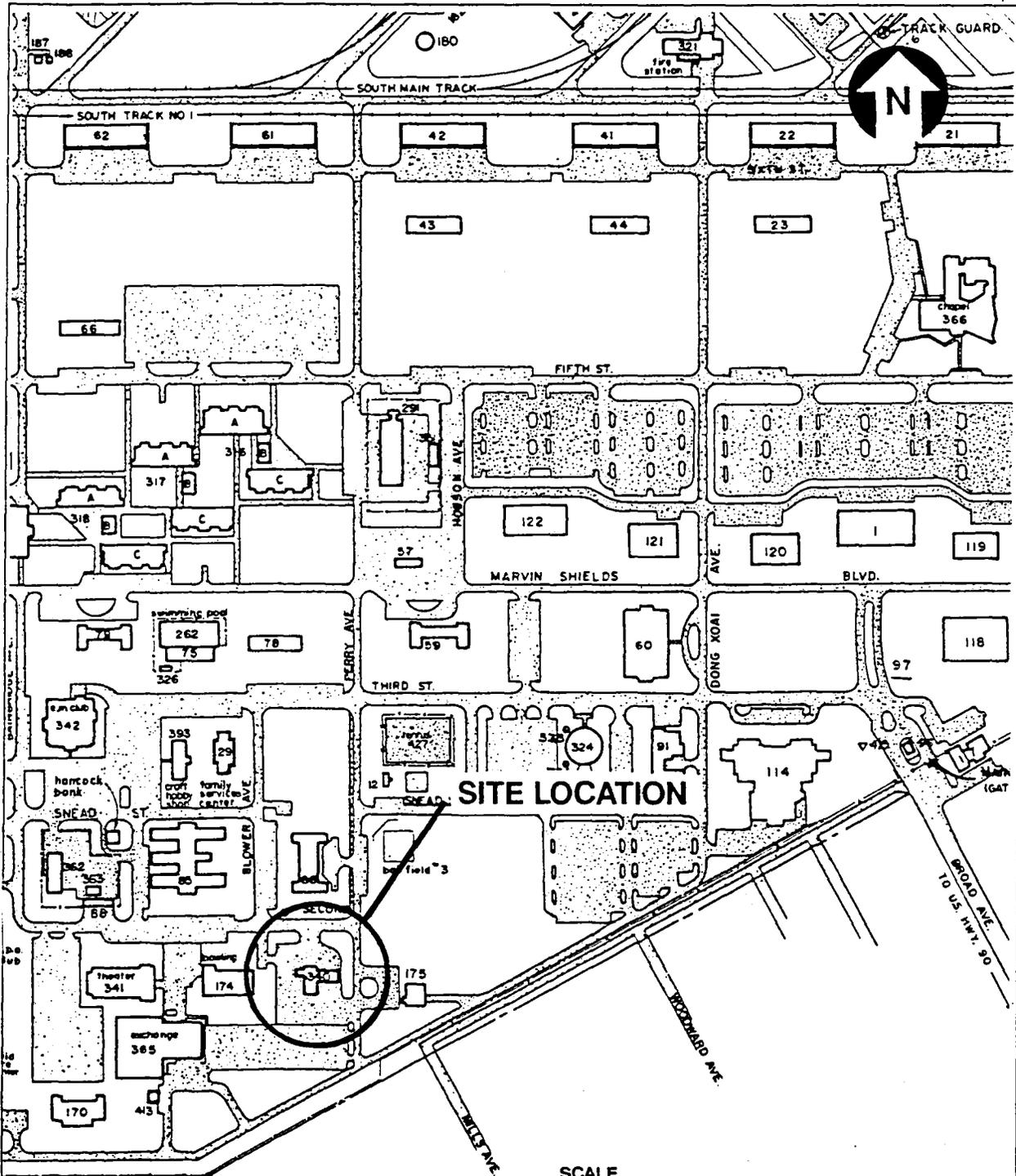


**FIGURE 2-1
FACILITY LOCATION MAP**



**CONTAMINATION
ASSESSMENT REPORT**

**NAVAL CONSTRUCTION
BATTALION CENTER
GULFPORT, MISSISSIPPI**

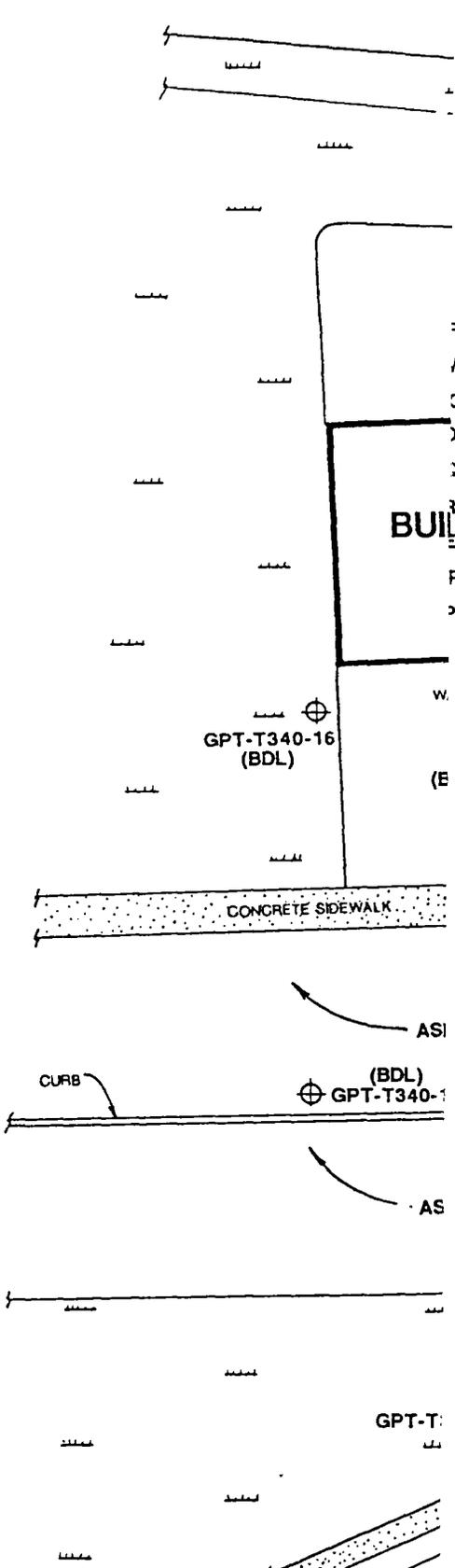


SOURCE: GENERAL DEVELOPMENT MAP 1003-79.

FIGURE 2-2
SITE LOCATION MAP



CONTAMINATION
ASSESSMENT REPORT
NAVAL CONSTRUCTION
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GULFPORT, MISSISSIPPI



MASS
OVERHEAD ELECTRICAL LINES
MONITORING WELL LOCATION
TOTAL VOA CONCENTRATION (ug/l)
EQUIPOTENTIAL CONTAMINANT LINES
FREE PRODUCT
FLOW DETECTION LIMIT
APPROX. EXTENT OF TOTAL VOA CONTAMINATION
APPROX. EXTENT OF FREE PRODUCT

BUILDING

GPT-T340-16
(BDL)

CONCRETE SIDEWALK

CURB

(BDL)
GPT-T340-1

FIGURE 7

TOTAL VOA CONTAMINANT MAP



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GULFPORT, MISSISSIPPI

ACKNOWLEDGMENTS

In preparing this report, The Underground Storage Tank Section of the Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Group at ABB Environmental Services Inc. (ABB-ES) commends the support, assistance, and cooperation provided by the personnel at Naval Construction Battalion Center (NCBC) Gulfport, Mississippi, and Southern Division, Naval Facilities Engineering Command. In particular, we acknowledge the effort, dedication, and professionalism provided by the following people during the investigation and preparation of this report.

<u>NAME</u>	<u>TITLE</u>	<u>POSITION</u>	<u>LOCATION</u>
Luis Vazquez	Env. Engineer	Engineer in Charge	SOUTHNAVFACENGCOM
Tom Sarros	Env. Coordinator	Env. Coordinator	NCBC Gulfport

3.0 SITE CONDITIONS

3.1 PHYSIOGRAPHY.

3.1.1 Regional Regional physiography is discussed in Appendix A.

3.1.2 Site Specific NCBC is situated on a broad, gently sloping ridge, the long axis of which trends southwest to northeast across the activity. Elevations vary roughly from 20 to 30 feet National Geodetic Vertical Datum (NGVD). In the western part of the activity, drainage is north and northwest to Canal No. 1 and Turkey Creek. In the eastern part, drainage is toward the south and southeast to Brickyard Bayou (Harding Lawson Associates, 1987). The site of investigation is located in the south-central part of the activity and drainage is predicted to be to the southeast as controlled by topography and the drainage ditch system.

3.2 HYDROGEOLOGY.

3.2.1 Regional Regional hydrogeology is discussed in Appendix A.

3.2.2 Site Specific The site specific hydrogeology of NCBC Gulfport is as follows.

Two Citronelle aquifers were encountered during drilling operations at the site. The uppermost Citronelle aquifer occurs under water table conditions and is composed of organic fine- to medium-grained sands, sandy clays, and clayey sands with some gravel zones (Figure 3-1). Depth to water within the water table aquifer varied from 2 to 4 feet below land surface (bls). The direction of groundwater flow was observed to vary at the site. Within a 24-hour period after a considerable rainfall event, flow direction was observed to shift from a southerly direction to more of an easterly direction. A complete set of water levels was obtained on September 23, 1991, to assess flow directions under more stable (no rainfall) conditions (Table 3-1). Based on this data, the direction of groundwater flow is to the south-southeast (Figure 3-2). The base of the water table aquifer was encountered at a depth of approximately 25 feet bls.

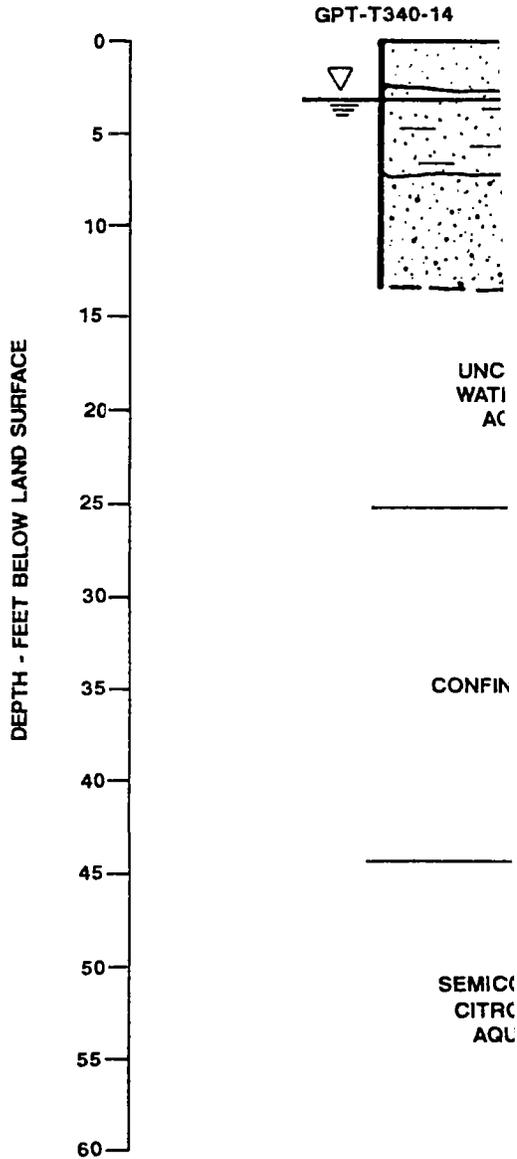
Separating the water table aquifer from the deeper, semi-confined Citronelle aquifer was a blue-gray stiff clay with thin sandy clay stringers. The thickness of the clay unit encountered during the drilling and installation of the deep well was approximately 17 feet.

The top of the deeper, semi-confined Citronelle aquifer was encountered at a depth of approximately 45 feet bls. The aquifer is composed predominantly of fine- to medium-grained sands to at least 62 feet bls. A 5-foot thick clayey sand transition unit was encountered from 45 to 50 feet bls. The potentiometric surface of the aquifer was approximately 10 feet bls. The difference in water levels between the water table aquifer and the confined aquifer was approximately 6 feet with a resulting net downward hydraulic gradient.

The Miocene aquifer system was not encountered during drilling operations onsite. Complete lithologic logs for all monitoring wells are presented in Appendix C.

SOUTH

A



HORIZONTAL SCALE 1" = 100'

NOTE: SEE FIGURE 3 FOR CROSS SECTION LOCATION.

FIGURE 4
GEOLOGIC CROSS SECTION



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ASSESSMENT REPORT
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naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and pyrene were detected in 3 monitoring wells at various relatively low concentrations.

The approximate horizontal extent of total VOA contamination, based on the laboratory analytical results, is shown in Figure 5-1. The vertical extent of contamination, as defined by the deep well, does not appear to have penetrated the confining unit between the unconfined water table aquifer and the underlying Citronelle aquifer.

Based on the contaminant plume configuration, the source of contamination appears to be the USTs (tanks 340-1, 340-2, and 340-3) and the associated piping to the dispensing pumps at the pump islands. Appendix F contains a report of the laboratory analytical results.

5.4 POTABLE WELL SURVEY. No potable wells were identified within a 1/4-mile radius of the site on base. A total of four potable wells are located outside of the 1/4-mile site radius in buildings 181, 182, 183, and 416 at NCNB Gulfport. In addition, a fire protection well exists at building 227. The depths of wells are reported to be approximately 700 feet bls (personal communique, Tom Sarros).

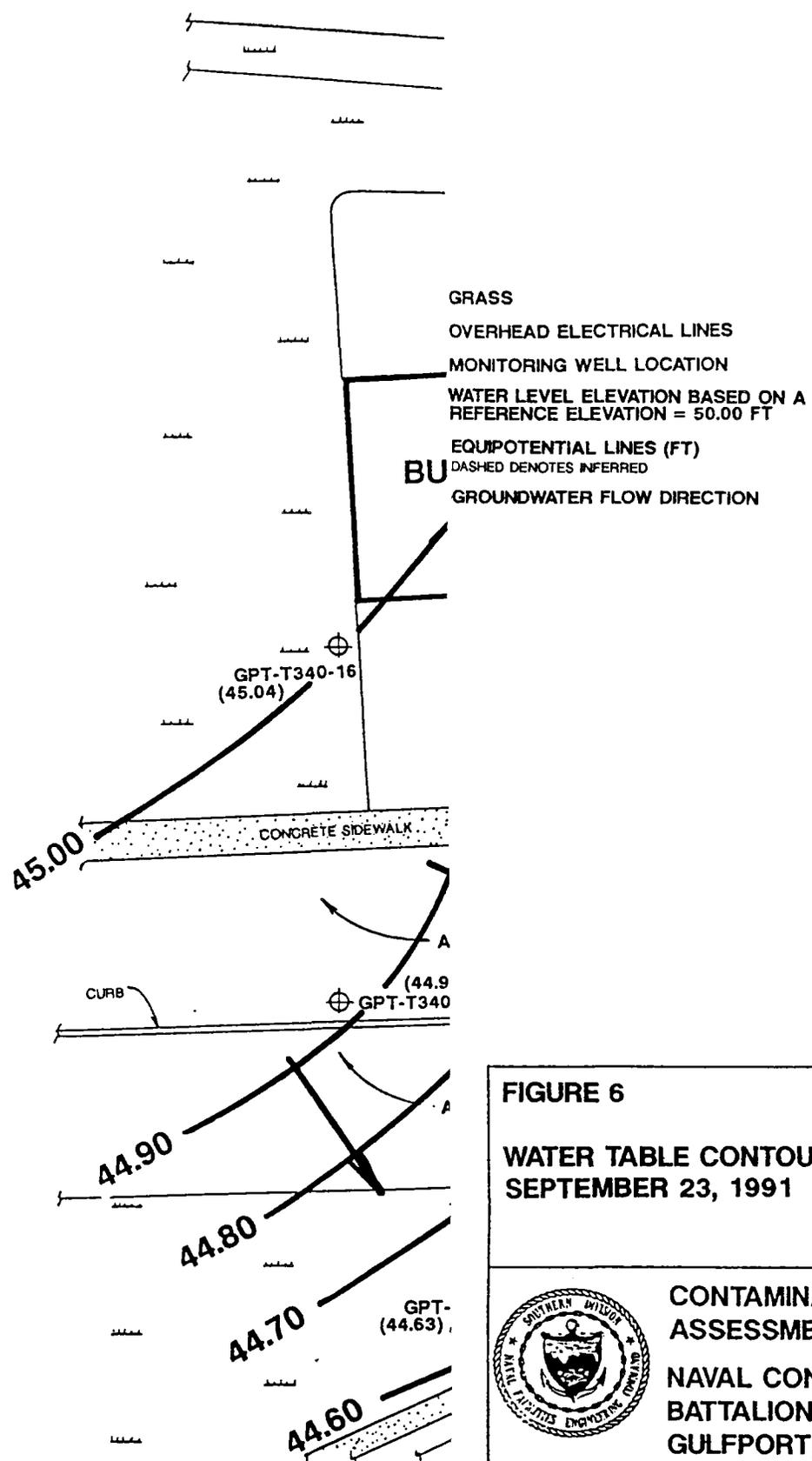


FIGURE 6
WATER TABLE CONTOUR MAP
SEPTEMBER 23, 1991

**CONTAMINATION
ASSESSMENT REPORT**
**NAVAL CONSTRUCTION
BATTALION CENTER
GULFPORT, MISSISSIPPI**

**Table 3-1
Monitoring Well and Survey Data
September 23, 1991**

**Contamination Assessment Report
Naval Construction Battalion Center
Navy Exchange Service Station
Gulfport, Mississippi**

Monitoring Well No.	Total Well Depth (feet)	Top of Casing Elevation * (feet)	Depth to Water (feet)	Water Level Elevation (feet)*
GPT-T340-4	15	NM	FP	NM
GPT-T340-5	15	48.99	4.09	44.90
GPT-T340-6	15	48.89	4.05	44.84
GPT-T340-7	13	48.83	4.03	44.80
GPT-T340-8	13	48.94	4.02	44.92
GPT-T340-9	13	48.56	3.81	44.75
GPT-T340-10	13	47.91	3.11	44.80
GPT-T340-11	13	49.18	4.11	45.07
GPT-T340-12	13	47.85	2.89	44.96
GPT-T340-13	13	48.40	3.62	44.78
GPT-T340-14	13	47.12	2.49	44.63
GPT-T340-15	13	48.52	3.77	44.75
GPT-T340-16	13	48.97	3.93	45.04
GPT-T340-17	13	48.43	3.51	44.92
GPT-T340-DW1	62	48.40	11.79	36.61

Notes: * Based on a reference elevation of 50.00 feet established at an arbitrary benchmark.
 NM = not measured.
 FP = Free product in well.

4.0 METHODOLOGIES AND EQUIPMENT

4.1 SOIL BORING PROGRAM. Originally, hand auger borings were proposed to be advanced at the site to the water table. The purpose of the borings was to aid in the delineation of the contaminant plume emanating from the tank pad. However, due to the conditions at the site at the time of the investigation (i.e.: high water table from an unusually large volume of rainfall) the technique proved ineffective. Saturated soil samples from auger borings advanced adjacent to the tank pad revealed only trace levels of contamination. After installing monitoring wells, groundwater screening indicated much higher levels of contamination in the same areas. It is postulated that the majority of the petroleum contamination was trapped in the soil pore space beneath the high water table. As a result of the comparison, the soil boring phase of the investigation was discontinued.

4.2 MONITORING WELL INSTALLATION PROGRAM. Eleven additional shallow, 2-inch monitoring wells (T340-7 through T340-17) and one deep, 2-inch monitoring well (T340-DW-1) were installed at the site during the CA. Monitoring well construction methodologies and materials are discussed in Appendix B.

4.3 GROUNDWATER ELEVATION SURVEY. The elevation and slope of the water table were determined by surveying the top of the well casing for each monitoring well to a common datum using a surveyor's level and stadia rod. No benchmark referencing an elevation to the National Geodetic Vertical Datum (NGVD) of 1929 was located in the area; therefore, an arbitrary benchmark (BM) elevation of 50.00 feet was established on the southern end of the eastern-most pump island (see Figure 3-2). The elevations and water level data for all monitoring wells were measured from the north side of the PVC well casing.

Groundwater level measurements were collected on September 23, 1991, from the shallow monitoring wells and the deep well (Table 3-1 and Figure 3-2). Procedures for ground water level measurements are contained in Appendix B.

4.4 GROUNDWATER SAMPLING PROGRAM. Groundwater samples were collected during the CA on August 28, 1991, from the monitoring wells installed during the investigation and the existing compliance wells. Appropriate Quality Assurance/Quality Control samples (trip blanks, equipment blanks, and duplicates) were collected for each sampling event. Samples collected during the CA were shipped to Wadsworth/Alert Laboratories, Inc., in Tampa, Florida via overnight delivery for analysis. Procedures for collection of groundwater samples are presented in Appendix B.

4.5 AQUIFER SLUG TESTS. A series of slug tests were performed on monitoring wells GPT-T340-7, GPT-T340-8, and GPT-T340-13 to evaluate the hydraulic conductivity of the aquifer response zone. Procedures for conducting slug tests are discussed in Appendix B.

4.6 PRECISION TANK TESTING. On September 28, 1990, the Navy contracted with Petro Services of Gulfport to conduct precision volumetric tank testing (Petrotite™) of the three 10,000 gallon, steel, USTs (T340-1 through T340-3) and

their associated piping at the NCBC Navy Exchange Service Station. Section 5.2 discusses the results of the tank testing at the site.

5.0 CONTAMINATION ASSESSMENT RESULTS

5.1 AQUIFER CHARACTERISTICS AND HYDROGEOLOGIC PARAMETERS. The results of the slug test analysis indicate an average horizontal hydraulic conductivity of between 7.3 and 12.9 ft/day. The average horizontal hydraulic conductivity value (K) for the site is 10.1 ft/day. The average pore water velocity (V) is 0.12 ft/day and the transmissivity (T) is 80.80 ft²/day. Equations and calculations used to determine these values as well as slug test data are presented in Appendix D.

5.2 PRECISION TANK TESTING RESULTS. The results of the tank testing that occurred on September 28, 1990, indicated that two of the three tanks were leaking. Tank 340-1 was leaking at a rate of 1.25 gallons per hour (gal/hr). Test results for tank 340-3 indicated a rate of leakage of 0.75 to 0.95 gal/hr. Tank 340-2 tested tight. On September 29, 1990, the soil above the tanks were excavated to the tops of the tanks to determine if the leaks were occurring at the tank bungs. The investigation revealed that the tank bungs and manhole ports were not the source of the leaks. As a result of the failed tank testing, on October 1, 1990 tanks 340-1 and 340-3 were taken out of service, triple rinsed, and filled with water. The associated tank piping for the three USTs passed a pressure test and did not indicate any leakage. A copy of the precision tank testing report and testing of the associated piping is presented in Appendix E.

It should be noted that the annulus around each tank fill port was not properly sealed. Overfills and spillage of petroleum product during the filling of the tanks could infiltrate downward directly into the surficial groundwater of the water table aquifer.

5.3 CONTAMINANT PLUME DEFINITION AND CHARACTERIZATION. Free product was measured in CMW GPT-T340-4 at a thickness of 2.1 feet. No other monitoring wells contained free product. Information obtained from hand auger borings adjacent to the tank suggest that the product may be confined to the tank pit.

Water quality field parameters were collected from all sampled monitoring wells during the CA. In general, the Ph ranged from 4.2 to 8.59, the specific conductance ranged from 100 to 270 micromhos per centimeter ($\mu\text{mhos/cm}$), and the temperature ranged from 27 to 31 degrees centigrade ($^{\circ}\text{C}$).

Table 5-1 presents a summary of the laboratory results for the sampling that was conducted during the CA and should be referred to during the following discussion. USEPA Method 239.2 (lead) analyses revealed 5 micrograms per liter ($\mu\text{g/l}$) in monitoring wells GPT-T340-8 and GPT-T340-12, and 52 $\mu\text{g/l}$ in GPT-T340-9. The compound ethylene dibromide (EDB) was detected in monitoring wells GPT-T340-7 and GPT-T340-8 at 0.03 and 0.05 $\mu\text{g/l}$, respectively. USEPA Method 601/602 analyses revealed volatile organic aromatic (VOA) contamination in 7 monitoring wells (GPT-T340-5, GPT-T340-6, GPT-T340-7, GPT-T340-8, GPT-T340-9, GPT-T340-13, and GPT-T340-15) at various concentrations shown on Table 2. In addition, the USEPA method 601/602 analyses revealed chloroform and 1,2-dichlorobenzene at detection-limit concentrations in 2 monitoring wells. Total recoverable petroleum hydrocarbons (TPH) were detected in 3 monitoring wells at various low concentrations. The polynuclear aromatic hydrocarbons (PAHs) acenaphthalene,

Table 5-1
Summary of Groundwater Analytical Results
August 28, 1991
Contamination Assessment Report
Naval Construction Battalion Center
Navy Exchange Service Station
Gulfport, Mississippi

Compound	Monitoring Well Number													
	T340-5	T340-6	T340-7	T340-8	T340-9	T340-10	T340-11	T340-12	T340-13	T340-14	T340-15	T340-16	T340-17	T340-DW1
Lead	BDL	BDL	BDL	5	52	BDL	BDL	5	BDL	BDL	BDL	BDL	BDL	BDL
EDB	BDL	BDL	0.03	0.05	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MTBE	1	BDL	4	BDL	3,500	BDL	BDL	BDL	1,800	BDL	260	BDL	BDL	BDL
Chloroform	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-dichloro- benzene	BDL	BDL	BDL	BDL	BDL	BDL	1	BDL	BDL	BDL	BDL	BDL	BDL	1
Benzene	BDL	1200/1200	BDL	3,100	8,200	BDL	BDL	BDL	1,400/2,100	BDL	BDL	BDL	BDL	BDL
Ethyl benzene	BDL	100/100	BDL	290	BDL	BDL	BDL	BDL	BDL/160	BDL	BDL	BDL	BDL	BDL
Toluene	BDL	BDL	BDL	980	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Xylenes	BDL	240/240	BDL	890	1,300	BDL	BDL	BDL	BDL/140	BDL	BDL	BDL	BDL	BDL
Total VOAs	BDL	1540/1540	BDL	5,260	9,500	BDL	BDL	BDL	1,400/2,400	BDL	BDL	BDL	BDL	BDL
TPH (mg/l)	BDL	BDL	BDL	2	2	BDL	BDL	BDL	1	BDL	BDL	BDL	BDL	BDL
Acenaph- thalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	30	BDL	BDL	BDL	BDL	BDL
Naph- thalene	BDL	BDL	BDL	52	30	BDL	BDL	BDL	17	BDL	BDL	BDL	BDL	BDL
1,Methylnaph- thalene	BDL	BDL	BDL	10	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,Methylnaph- thalene	BDL	BDL	BDL	11	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Pyrene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	33	BDL	BDL	BDL	BDL	BDL

Notes: Monitoring well numbers are preceded with a "GFT-" designation.
 Results expressed in ug/l unless stated otherwise.
 BDL = below detection limit.
 Second value shown for GFT-T340-6 and GFT-T340-13 are duplicate sample results.
 Trip, rinse, and laboratory blanks were reported BDL.

EDB = ethylene dibromide.
 MTBE = methyl tert-butyl ether.
 Total VOAs = the sum of benzene, ethyl benzene, toluene, and total xylenes.
 TPH = total recoverable petroleum hydrocarbons.

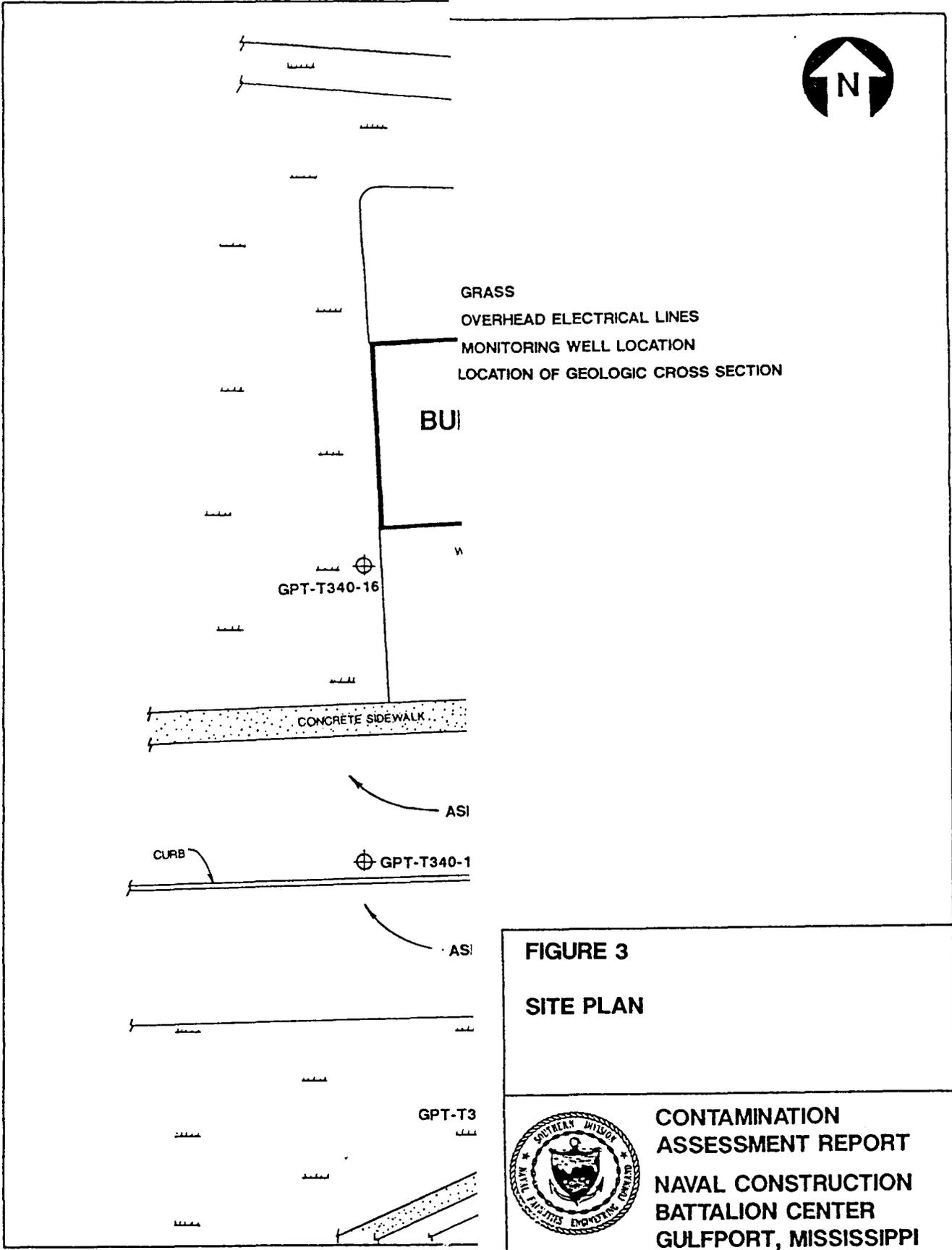
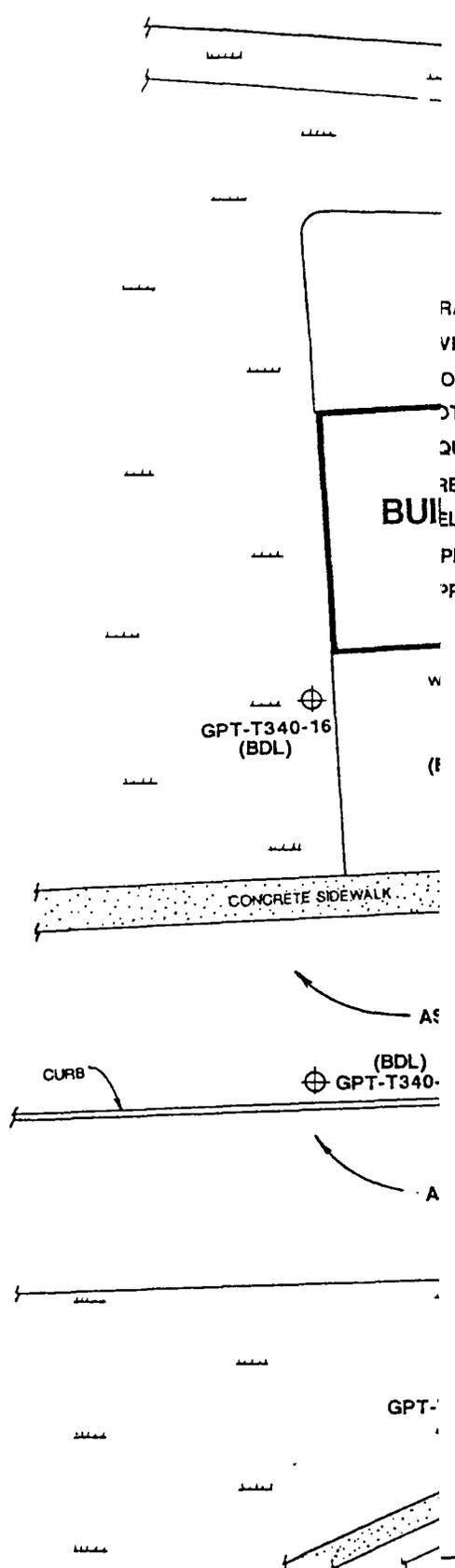


FIGURE 3
SITE PLAN



**CONTAMINATION
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GULFPORT, MISSISSIPPI**



- RASS
- VERHEAD ELECTRICAL LINES
- ONITORING WELL LOCATION
- TOTAL VOA CONCENTRATION (ug/l)
- EQUIPOTENTIAL CONTAMINANT LINES
- FREE PRODUCT
- BU**LOW DETECTION LIMIT
- APPROX. EXTENT OF TOTAL VOA CONTAMINATION
- APPROX. EXTENT OF FREE PRODUCT

FIGURE 7

TOTAL VOA CONTAMINANT MAP



**CONTAMINATION
ASSESSMENT REPORT
NAVAL CONSTRUCTION
BATTALION CENTER
GULFPORT, MISSISSIPPI**

6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 SUMMARY. Based on the results of the field investigations and the laboratory analytical results collected during the CA, the following is a summary of conditions at the site.

- Two aquifers, the shallow water table aquifer and the deeper semi-confined Citronelle aquifer, were encountered during drilling operations onsite.
- Generally, the sediments encountered were comprised predominantly of fine- to medium-grained sands, sandy clays, and clayey sands. A stiff blue-gray clay exists beneath the site at an approximate depth of 25 feet that forms a confining unit between the upper unconfined water table aquifer and the deeper semi-confined Citronelle aquifer.
- Groundwater beneath the site was encountered at a depth of between 2 and 4 feet bls in the water table aquifer, and at a depth of approximately 10 feet bls in the deeper aquifer.
- The direction of groundwater flow in the water table aquifer was noted to vary based on the effects of rainfall. However, overall flow is generally to the south-southeast.
- Free product was measured in compliance monitoring well GPT-T340-4 at a thickness of 2.1 feet.
- Groundwater contaminants identified during the CA investigation include lead, EDB, MTBE, chloroform, 1,2-dichlorobenzene, benzene, ethyl benzene, toluene, xylenes, acenaphthalene, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, and pyrene.
- Tank testing results conducted by Navy subcontractors revealed that tanks 340-1 and 340-3 were leaking at rates of 1.25 and 0.75 gal/hr, respectively. Tank 340-2 tested tight. The associated piping for all three USTs tested tight.
- The vertical extent of petroleum contamination, as defined by the deep well, does not appear to exceed 25 feet bls.
- There are no identifiable potable wells on the base within a 1/4-mile radius of the site. Potable wells outside the 1/4-mile radius received their water at a depth of 700 feet bls.
- Hydraulic Conductivity $K=10.1$ ft/day
- Hydraulic Gradient $I=0.003$

6.2 CONCLUSIONS.

- Information gathered in the field during the CA indicate that the fill ports had not been properly grouted.
- The contaminant contour map suggests that both the tanks and associated piping to the dispensing pumps at the pump islands have leaked.

6.3 RECOMMENDATIONS. Because the groundwater beneath the site is contaminated by petroleum-related constituents and at relatively high concentrations, ABB-ES recommends that a Remedial Action Plan (RAP) be prepared as a follow-up report to address techniques for remediating the contamination. In addition, it is recommended that the new underground storage system that is proposed for the site be installed.

7.0 PROFESSIONAL REVIEW CERTIFICATION

The contamination assessment contained in this report was prepared using sound hydrogeologic principles and judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. This Contamination Assessment Report was developed for the Naval Facilities Engineering Command Naval Construction Battalion Center site at the Exchange Service Station in Gulfport, Mississippi, and should not be construed to apply to any other site.

Kenneth L. Busen
Professional Geologist

Date

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APPENDIX A

REGIONAL SITE CONDITIONS

Physiography

The topography in Harrison County, Mississippi consists predominantly of gently rolling terrains with well established stream valleys (Newcome and others, 1968). Surface water drainage patterns are typically dendritic. Elevations range from sea level in the coastal areas to 230 feet above mean sea level (msl) in the north-central part of the county.

Three major stream systems drain Harrison County (Newcome and others, 1968). These streams originate outside the county and flow generally southeastward through the county to bays that open onto Mississippi Sound. The western section of the county drains into the Wolf River, the largest of the streams in the area. The Biloxi and Tchoutacabouffa Rivers, whose drainage areas are nearly equal to the Wolf's, drain the central and eastern sections of the county, respectively. Several smaller streams drain parts of the county near the coastal area.

Hydrogeology

The gulf coastal area has slowly subsided for millions of years resulting in a vast sinking trough, or geosyncline (Newcome and others, 1968). The trough has been kept full by depositions of huge quantities of mud, sand, and gravel brought in by river and stream systems. Approximately 30,000 feet of sediments have accumulated within the trough. The major axis of the Gulf Coast geosyncline approximately parallels the Louisiana coastline making it possible for rivers and streams to deposit the deltaic sand and gravel units that make up the principal groundwater aquifers within the county.

The major water producing zones in Harrison County occur within Miocene to Recent age deposits. Stratigraphically, the oldest to youngest units of concern are the undifferentiated Miocene to Pliocene rocks containing the Catahoula Sandstone and the Hattiesburg and Pascagoula Formations, the Pliocene Graham Ferry and Citronelle Formations, the Pleistocene terrace deposits, and the Recent alluvium and beach deposits (Newcome and others, 1968). In addition, Newcome and others (1968) proposed that all units extending from the base of the Miocene (approximately 2500 to 3000 feet below sea level) to within 100 feet of land surface be designated the Miocene and Pliocene rocks, undifferentiated, and that sediments above an irregular depth of 40 to 100 feet be designated Citronelle Formation, except where eroded and replaced by Pleistocene terrace deposits and Recent alluvium and beach deposits. Strikes of the beds is east-southeast with dips of the base of the Miocene rocks being to the south-southwest increasing from 50 feet per mile in northern Stone County to 90 feet per mile at the coast. Dips of sediment above 1,000 feet msl are believed to be about 30 feet per mile.

Groundwater in Harrison County occurs within lenticular sand beds (Newcome and others 1968). The sand aquifers are irregular in thickness and extent. According to Newcome and others (1968), no thick, consistently traceable clay beds exist within the deposits. These Miocene to Recent age deposits contain a freshwater section that ranges in thickness from 1,850 in the northeast corner of the county to 2,500 feet in the Gulfport area. Individual freshwater sand lenses in the county range from 10 to 270 feet with a median thickness of 65 feet.

Bednar (1986) has identified two principal aquifer systems in Harrison County: the Citronelle aquifers and the Miocene aquifer system. The Citronelle aquifers consist of numerous discontinuous, hydrologically independent aquifers (Gandl, 1982). The Citronelle is made up of quartz sand, chert gravel, and lenses and layers of clay. The aquifers dip southward at about 6 feet per mile with a steeper dip along the coast where they are overlain by coastal terraces. Aquifer thicknesses rarely exceed 100 feet with maximum thicknesses occurring near the coast. Groundwater flow direction is determined predominantly by topography. Recharge to the aquifer comes primarily from rainfall and through upward leakage from lower confined aquifers. Aquifer tests indicate transmissivities ranging from 4,000 to 13,000 feet squared per day (ft^2/day), hydraulic conductivities of 82 to 200 feet per day (ft/day), and specific capacities of 6.2 to 46 gallons per minute per foot of drawdown (gpm/ft) (Gandl, 1982).

The Miocene aquifer system is composed of numerous interbedded layers of sand and clay that include the Pascagoula and Hattiesburg Formations, and the Catahoula Sandstone (Gandl, 1982). The aquifer system thickens as the dip steepens towards the coast with maximum thicknesses exceeding 3,000 feet near the coast. Shallow units of the Miocene aquifer system exist under water-table conditions while deeper sands are confined and fully saturated. Water levels in the Miocene aquifer vary, but range from a few feet above land surface to 100 feet below land surface (bls). Groundwater flow is downdip, towards centers of pumpage, and between aquifers of the system. Recharge to the aquifers comes from rainfall, seepage from the overlying Citronelle aquifers, and from leakage between aquifer units of the Miocene aquifer system. Aquifer tests indicate transmissivities averaging 13,000 ft^2/day , hydraulic conductivities averaging 95 ft/day , and specific capacities as high as 30 gpm/ft .

APPENDIX B

INVESTIGATIVE METHODOLOGIES AND PROCEDURES

Monitoring Well construction

Monitoring wells were installed using a drill rig with hollow-stem augering capabilities. Soil samples were collected from each monitoring well borehole prior to well installation using a Standard Penetration Test (SPT) split-spoon sampler. The soil samples were collected immediately above the water table and from there at 5-foot intervals to the bottom of the borehole. These samples were analyzed using an a portable gas chromatograph (GC) calibrated to detect benzene, ethyl benzene, toluene, and xylene (BETX) to the part per billion (ppb) level. The purpose of the screening procedure was to optimize monitoring well placement during the investigation.

All monitoring wells installed during the investigation were constructed of schedule 40 polyvinyl chloride (PVC) casing with flush-threaded joints and 0.010-inch slotted screen. Each shallow well was constructed of 2-inch PVC with a 10-foot screen section placed at a depth that should encompass seasonal water table fluctuations. The deep monitoring well was constructed of 2-inch PVC with 10 feet of 0.010-inch slotted screen. Prior to installing the deep well, an 8-inch flush-threaded PVC surface casing was set to a depth of 31 feet bls to seal off the upper contaminated zone and isolate the water table aquifer from the deeper Citronelle aquifer. Each monitoring well casing extends from the top of the screen to land surface. A 20/30 grade silica filter pack was placed in the annular space around each well to approximately 2 to 3 feet above the top of the screens. A 1- to 2-foot bentonite seal was then placed on top of the filter pack. The remaining annular space was grouted to the surface with a neat cement grout and a protective traffic-bearing subsurface vault was installed to complete each well installation. Each monitoring well is equipped with an expanding well cap. Figure B-1 depicts a typical monitoring well installation for the site.

Water Level Measurements

The groundwater levels were measured using an electric water level indicator and an engineering tape divided into increments of 0.01 foot. The wells were checked for the presence of free product by visual observation of a groundwater sample taken from each well using an extruded Teflon™ bailer. Water level elevations were calculated by subtracting the measured depth to groundwater from the elevation at the top of the well casing. This information was plotted on a scaled water table contour map where flow lines (depicting groundwater flow direction) were drawn perpendicular to the groundwater elevation contours. The groundwater hydraulic gradient was calculated by subtracting the differences in groundwater elevation (in feet) between two points on the map and dividing the elevation difference by the distance perpendicular to the equipotential lines between two points to obtain a resulting gradient in feet per foot.

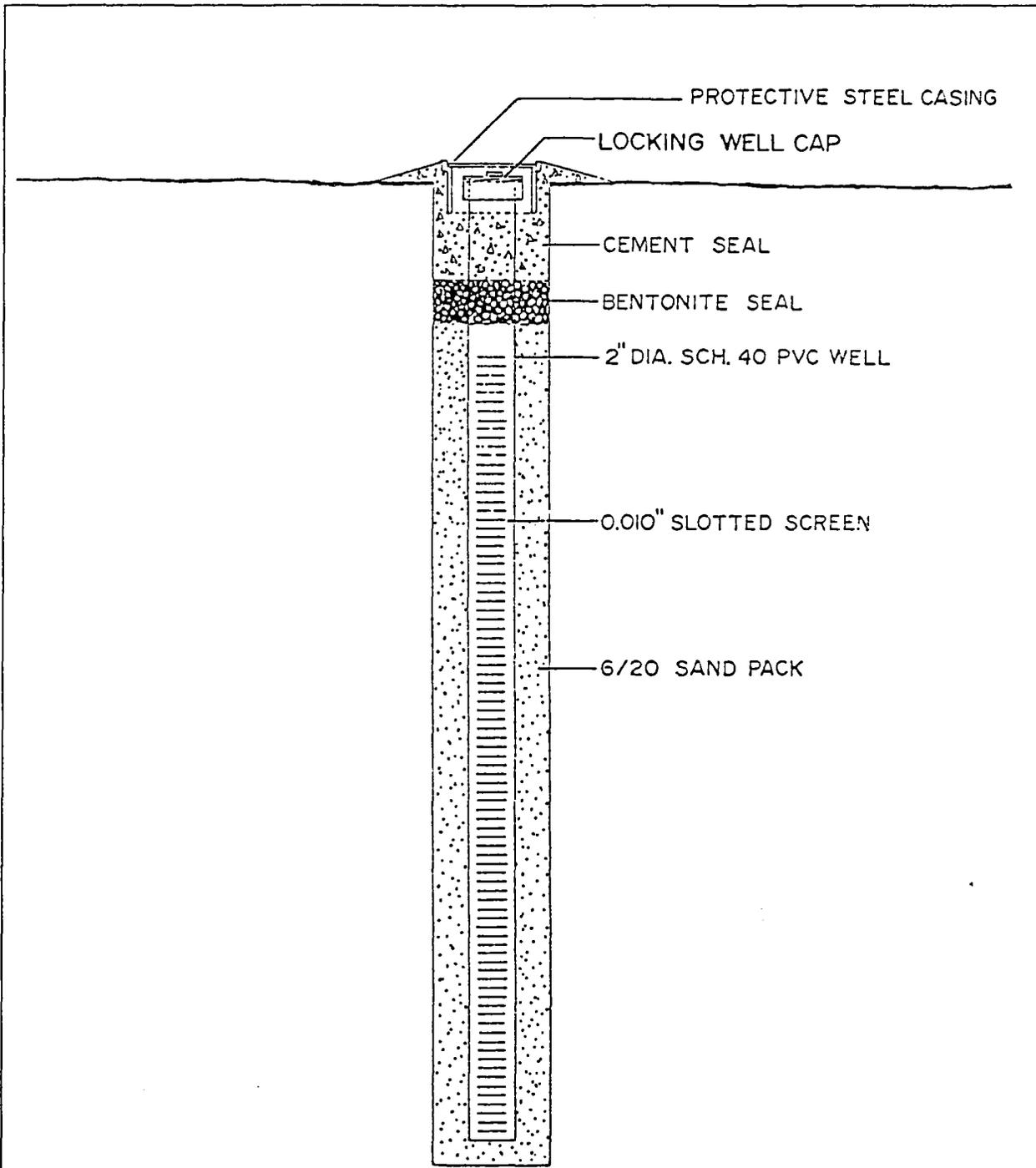


FIGURE B-1
TYPICAL MONITORING WELL
INSTALLATION DETAIL



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Groundwater Sampling

The groundwater samples were collected in accordance with ABB-ES's Florida Department of Environmental Regulation (FDER) approved Comprehensive Quality Assurance Project Plan (CompQAPP) that is consistent with the U.S. Environmental Protection Agency (USEPA) Region IV procedures. The monitoring wells were purged with a Teflon™ bailer. Purging continued until water quality parameters (specific conductance, temperature, and Ph) had stabilized. Groundwater samples were collected using an extruded Teflon™ bailer and placed into appropriate containers, properly preserved, and placed on ice. All groundwater samples collected during the CA were analyzed for the kerosene analytical group consisting of USEPA Methods 239.2, 418.1, 504.1, 601, 602, and 610. In addition, a total recoverable petroleum hydrocarbons (TPH) sample was collected at each well location.

Slug Tests

The slug was constructed of 1-inch outside diameter PVC pipe, 5 feet in length, filled with sand, and capped watertight at both ends. The water level changes in the monitoring wells were recorded with a data logger and pressure transducer.

The pressure transducer was suspended just above the bottom of the well and an initial water level was recorded prior to beginning the test. The slug was then lowered into the well until it was totally submerged beneath the water table.

Water levels were then observed until recovery to the original level. Following stabilization, the slug was quickly removed with water level measurements recorded over time until the water level returned to the original level. A total of three rising head tests were conducted for each well in order to obtain an average recovery response.

Aquifer characteristics were calculated from slug test data using the computer program AQTESOLV™ (Geraghty & Miller, Inc., 1989) based on the analytical method presented by Bouwer and Rice for partially penetrating wells screened in an unconfined aquifer. The program derives a hydraulic conductivity (K) value based on linear regression of the data gathered during the slug test.

APPENDIX C
LITHOLOGIC LOGS AND DRILLER COMPLETION FORMS

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-07	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/22/91	COMPLTD: 8/22/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.83 FT.	MONITOR INST.: OVA,GC	TOT DPTH: 13FT.	DPTH TO ∇ 4.03 FT.
LOGGED BY: M. Wilson	WELL DEVELOPMENT DATE: 8/23/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Organic soils and gravel				
5	S1	1.5/2		CLAYEY SAND: Red/brown fine grain mottled clayey sand		SC	1,1,2,4	
10	S2	1.5/2		SAND: Dark gray to gray, very tight, fine grain organic sand		SM	5,8,17,24	
15								

TITLE: NCBC Gulpport, Building 340		LOG of WELL: GPT-T340-08	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/22/91	COMPLTD: 8/22/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8"	PROTECTION LEVEL: 0
TOC ELEV.: 48.94 FT.	MONITOR INST.: OVA,GC	TOT DPTH: 13FT.	DPTH TO ∇ 4.02 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/23/91		SITE: NCBC Gulpport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Organic soils and gravel				
5	S1	1.5/2		CLAYEY SAND: Dark brown fine grain clayey sand with strong petroleum odor		SC	1,2,2,1	
10	S2	1/2		SAND: Dark gray to black, tight, fine grain organic sand		SM	8,8,7,8	
15								

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-09	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/22/81	COMPLTD: 8/22/81
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.56 FT.	MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 3.81 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/23/81		SITE: NCBC Gulport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Dark brown organic soils and gravel				
5	S1	1.5/2		CLAYEY SAND: Tan/brown fine grain clayey sand		SC	1,3,1,2	
10	S2	1.5/2		SAND: Dark gray to black, tight, fine grain organic sand with slight petroleum odor at 8-10 feet		SM	8,15,28,33	
15								

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-10	BORING NO.
CLIENT: SOUTHNAVAFACENCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/22/91	COMPLTD: 8/22/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8"	PROTECTION LEVEL: D
TOC ELEV.: 47.91 FT.	MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 3.11 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/23/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Red/brown organic fill with gravel				
5	S1	2/2		CLAYEY SAND: Gray/brown fine grain clayey sand		SC	1,2,3,5	
10	S2	15/2		SAND: Gray to black, tight, fine grain sand		SM	11,21,28,38	
15								

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-11	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/23/91	COMPLTD: 8/23/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8"	PROTECTION LEVEL: D
TOC ELEV.: 49.18 FT.	MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 4.11 FT.
LOGGED BY: M. Wilson	WELL DEVELOPMENT DATE: 8/23/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			FILL MATERIAL: Red/brown organic fill with gravel				
5	S1	1/2	CLAYEY SAND: Light gray fine grain clayey sand		SC	4,3,3,9	
10	S2	2/2	SAND: Dark gray, silty, organic sand		SM	9,7,15,22	
15							

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-12	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/23/91	COMPLTD: 8/23/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8"	PROTECTION LEVEL: D
TOC ELEV.: 47.85 FT.	MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 2.89 FT.
LOGGED BY: M. Wilson	WELL DEVELOPMENT DATE: 8/23/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Red/brown organic fill with gravel				
5	S1	1.5/2		CLAYEY SAND: Light gray fine grain clayey sand		SC	1,1,3,8	
10	S2	2/2		SAND: Dark gray to black tight, fine grain organic sand		SM	8,11,10,14	
				GRAVEL SAND MIXTURE: Dark gray to black, fine grain sand with small, rounded quartz pebbles		GM		

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-13	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/23/91	COMPLTD: 8/23/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA.: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.40 FT.	MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 3.82 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/23/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Dark brown organic fill with gravel		SC		
5	S1	15/2		CLAYEY SAND: Light gray to gray, fine grain clayey sand		SM	1,1,2,3	
10	S2	15/2		SAND: Dark gray, fine to medium grain sand		GM	7,8,17,22	
				GRAVEL SAND MIXTURE: Dark gray, fine to medium grain sand with small, rounded quartz pebbles				

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-14	BORING NO.
CLIENT: SOUTHNAVFACECOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/28/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D
TOC ELEV.: 47.12 FT.	MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 2.49 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/29/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Red/brown organic fill with gravel				
5	S1	2/2		CLAYEY SAND: Light gray/brown fine grain clayey sand		SC	1,3,5,10	
10	S2	2/2		SAND: Light gray, fine to medium grain tight sand		SM	4,18,refuse	
15								

TITLE: NCBC Gulport, Building 340		LOG of WELL: GPT-T340-15	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/28/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.52 FT.	MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 3.77 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/28/91		SITE: NCBC Gulport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Dark reddish brown organic fill with gravel				
5	S1	1 1/2		CLAYEY SAND: Light gray, fine grain clayey sand		SC	1,1,1	
10	S2	1/2		SAND: Gray, fine to medium grain tight sand		SM	12,13,17,20	
				GRAVEL SAND MIXTURE: Gray, fine to medium grain sand with small, rounded quartz pebbles		GM		

TITLE: NCBC Gulport, Building 340		LOG of WELL: GPT-T340-18		BORING NO.			
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: 7521-30			
CONTRACTOR: Griner Drilling Service, Inc.			DATE STARTED: 8/28/91		COMPLTD: 8/28/91		
METHOD: HSA		CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D			
TOC ELEV.: 48.97 FT.		MONITOR INST.: GC	TOT DPTH: 13FT.	DPTH TO ∇ 3.93 FT.			
LOGGED BY: C. King		WELL DEVELOPMENT DATE: 8/29/91		SITE: NCBC Gulport			
DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			FILL MATERIAL: Dark brown, sandy organic soil with gravel				
5	S1	1/2	CLAYEY SAND: Light gray/light brown, fine grain clayey sand		SC	2,4,4,8	
10	S2	2/2	SAND: Dark brown, fine to medium grain tight sand		SM	9,16,20,25	
15							

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-17	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/28/91
METHOD: HSA	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.43 FT.	MONITOR INST: GC	TOT DPTH: 13FT.	DPTH TO ∇ 3.51 FT.
LOGGED BY: R. White	WELL DEVELOPMENT DATE: 8/29/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				FILL MATERIAL: Dark brown, sandy organic soil with wood pieces, slight resin odor				
5	S1	1/2		CLAYEY SAND: Light gray, fine grain clayey sand with wood pieces, slight resin odor		SC	3,2,4,9	
10	S2	2/2		SAND: Dark brown, fine to medium grain tight sand		SM	3,11,30,sr	
				GRAVEL SAND MIXTURE: Dark brown, fine to medium sand with small, round quartz pebbles		GM		

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-DW1	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/27/91
METHOD: MR	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.40 FT.	MONITOR INST.: GC	TOT DPTH: 82FT.	DPTH TO ∇ 11.78 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/29/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
			FILL MATERIAL: Dark brown organic fill with gravel				
5	S1	1/2	CLAYEY SAND: Light gray to gray, fine grain clayey sand		SC	1,1,2,3	
10	S2	1.5/2	SAND: Dark gray, fine grain sand		SM	7,8,17,22	
15			GRAVEL SAND MIXTURE: Dark gray, fine to medium grain sand with small, rounded quartz pebbles		GM		

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-DWI	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/27/91
METHOD: MR	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: 0
TOC ELEV.: 48.40 FT.	MONITOR INST.: GC	TOT DPTH: 62FT.	DPTH TO ∇ 11.79 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/29/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
					GM			
	S3	2/2		SAND: Gray to light gray, very tight, fine grain sand	SM		25,34,42,38	
20								
	S4	1.5/2		CLAYEY SAND: Bluish gray, soft, fine grain clayey sand	SC		3,8,8,7	
25								
	S5	2/2			CH		1,2,2,2	
30								

TITLE: NCBC Gulport, Building 340		LOG of WELL: GPT-T340-DW1	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/27/91
METHOD: MR	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D
TOT ELEV.: 48.40 FT.	MONITOR INST.: GC	TOT DPTH: 62FT.	DPTH TO ∇ 11.79 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/28/91		SITE: NCBC Gulport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 2				
35				CLAY: Bluish gray, soft, moist clay	[Hatched Pattern]	CH	4,3,5,5	[Well Diagram]
	S8	2/2						
40							4,2,3,3	
	S7	2/2						
45						SC		

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-DW1	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/27/91
METHOD: MR	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.40 FT.	MONITOR INST.: GC	TOT DPTH: 82FT.	DPTH TO ∇ 11.79 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/29/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
Continued from PAGE 3							
50	S8	1.5/2	CLAYEY SAND: Gray, fine grain, slightly clayey sand	[Symbol: horizontal dashes]	SC	8,8,9,10	[Well Diagram]
55			SAND: Gray, fine to medium grain sand	[Symbol: dots]	SM		[Well Diagram]
80	S8	1/2				28,58,sr	[Well Diagram]

TITLE: NCBC Gulfport, Building 340		LOG of WELL: GPT-T340-DW1	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7521-30	
CONTRACTOR: Griner Drilling Service, Inc.		DATE STARTED: 8/28/91	COMPLTD: 8/27/91
METHOD: MR	CASE SIZE: 2"	BORING DIA: 8"	PROTECTION LEVEL: D
TOC ELEV.: 48.40 FT.	MONITOR INST.: GC	TOT DPTH: 82FT.	DPTH TO ∇ 11.78 FT.
LOGGED BY: C. King	WELL DEVELOPMENT DATE: 8/28/91		SITE: NCBC Gulfport

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 4				
85				SAND: Gray, fine to medium grain sand		SM		
70								
75								

APPENDIX D

AQUIFER TEST DATA

Estimates of average pore water velocity were obtained using the following formula:

$$V = (K * I) / n \quad (1)$$

where

V = discharge (velocity),
K = hydraulic conductivity in ft/day,
I = hydraulic gradient, and
n = estimated porosity.

Assuming an estimated porosity of 25 percent and an average hydraulic gradient of 0.003, and an average hydraulic conductivity of 10.1 ft/day, the calculated average linear pore water velocity would be as follows:

$$V = (10.1 * 0.003) / .25 \\ V = 0.12 \text{ ft/day}$$

In order to calculate a average transmissivity value from the slug test results, the following formula was used:

$$T = K * b \quad (2)$$

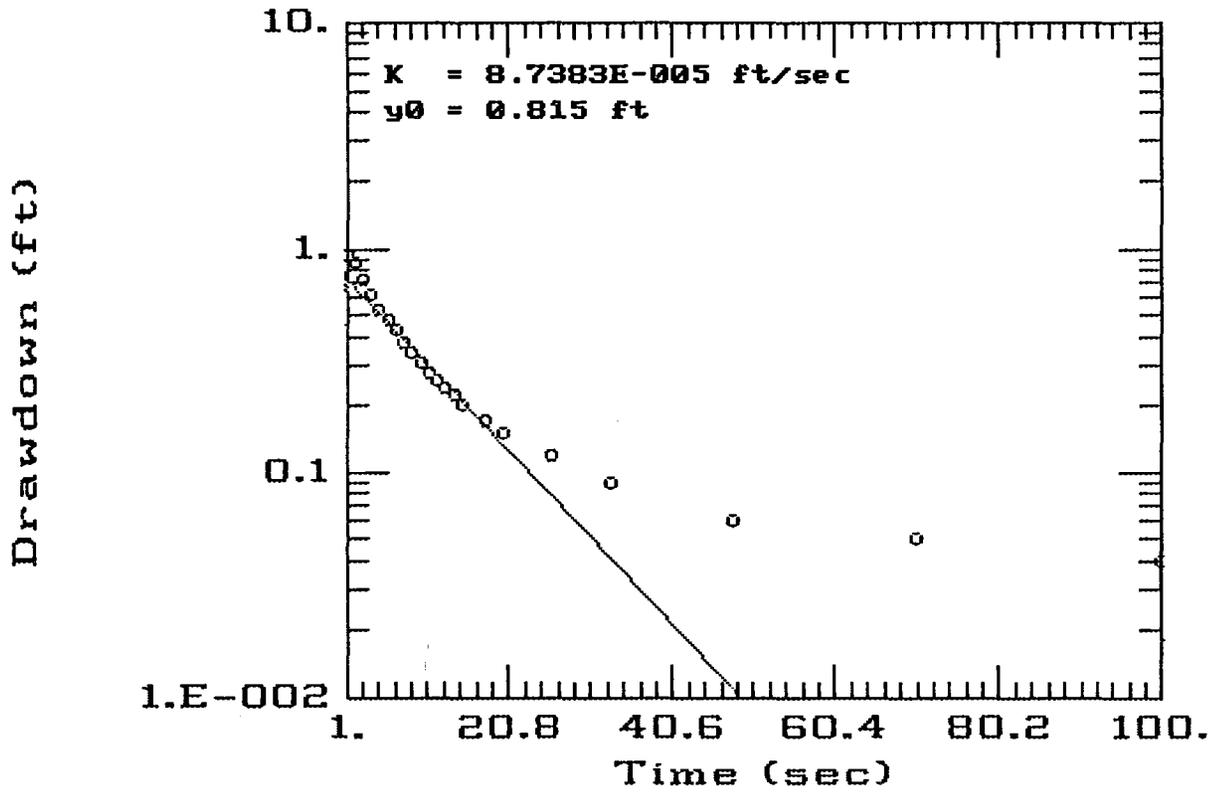
where

T = transmissivity in ft²/day,
K = hydraulic conductivity in ft/day, and
b = aquifer test interval (thickness in feet).

Based on this formula, the calculation for T would be as follows:

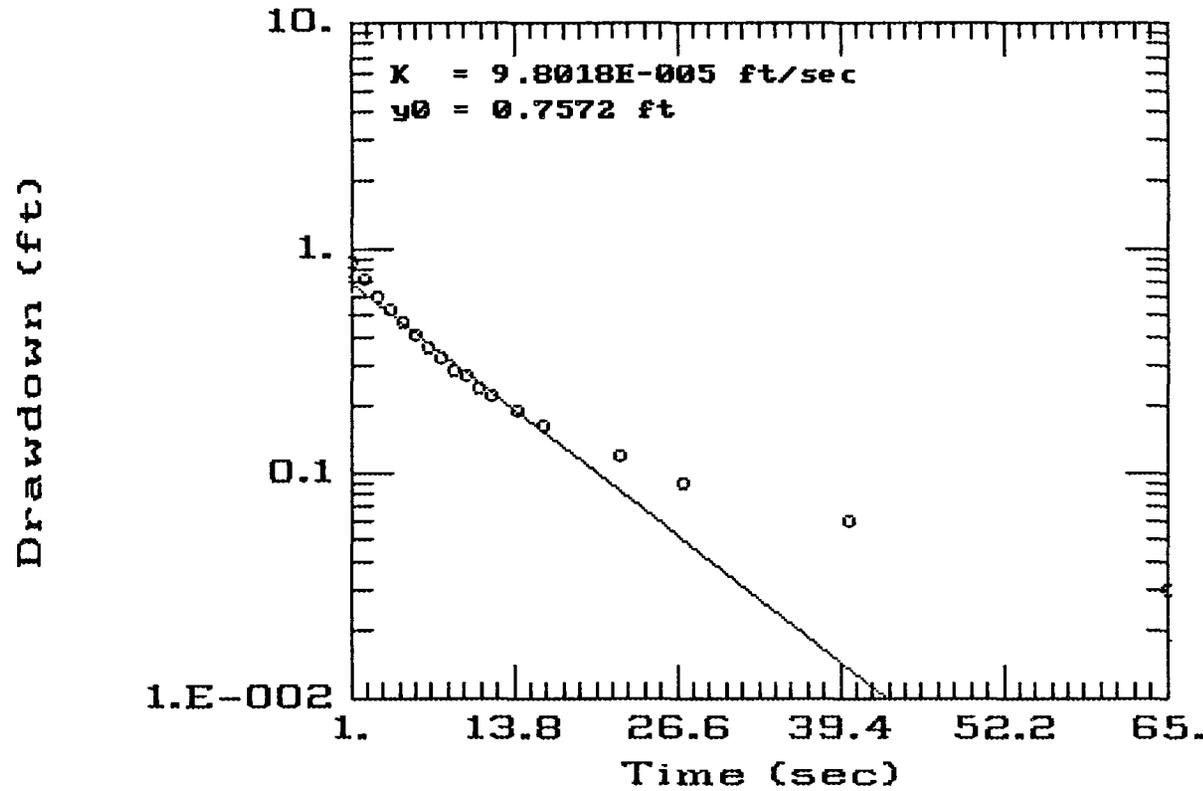
$$T = 10.1 * 8 \\ T = 80.80 \text{ ft}^2/\text{day}$$

NCBC GULFPORT GPT-T340-7 RUN NO. 1



AQTESOLV
GERAGHTY & MILLER, INC.
Modeling Group

NCBC GULFPORT GPT-T340-7 RUN NO. 2



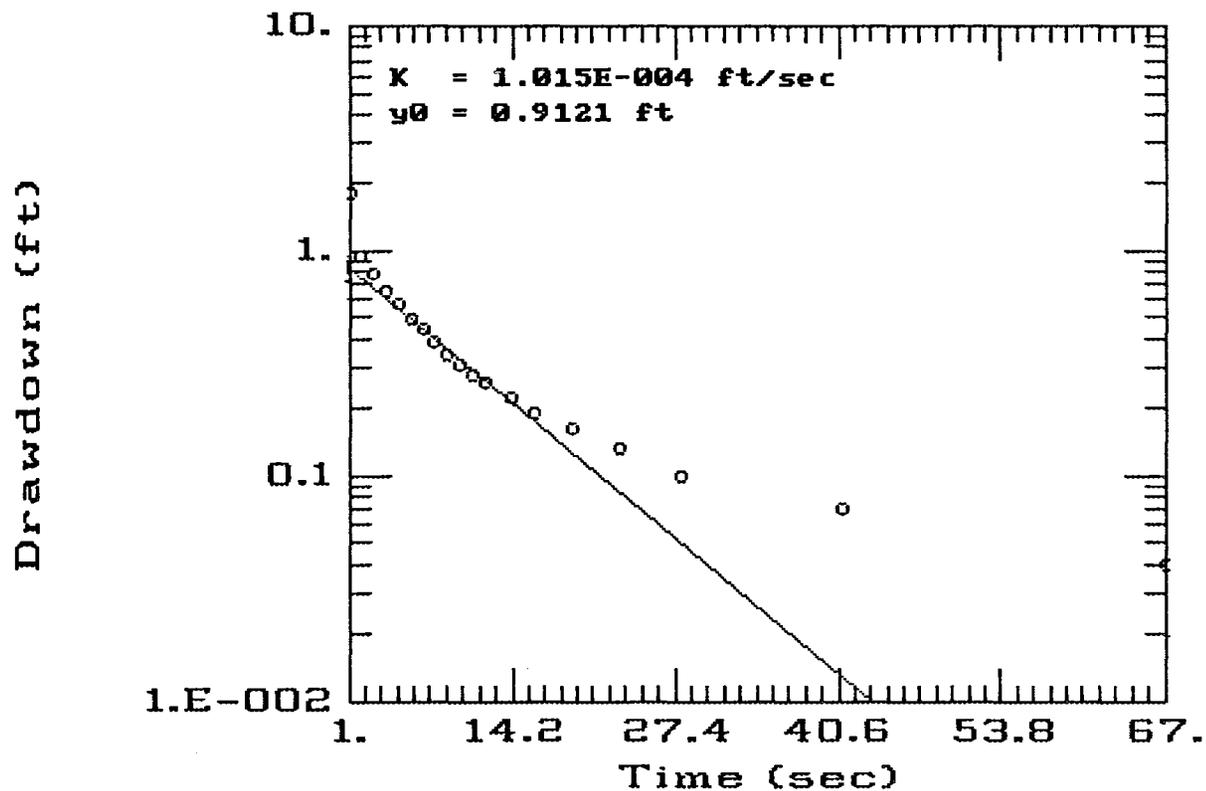
AQTESOLV



GERAGHTY
& MILLER, INC.

Modeling Group

NCBC GULFPORT GPT-T340-7 RUN NO. 3



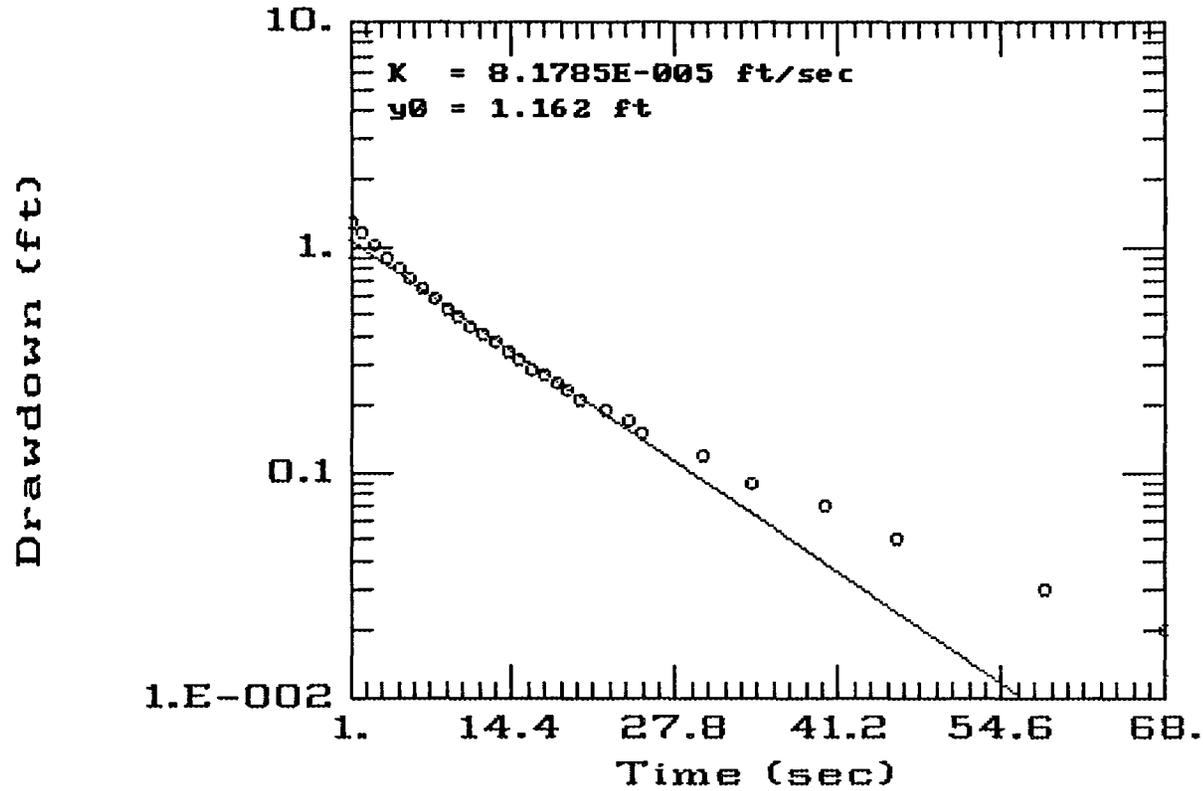
AQTESOLV



GERAGHTY
& MILLER, INC.

Modeling Group

NCBC GULFPORT GPT-T340-8 RUN NO. 1



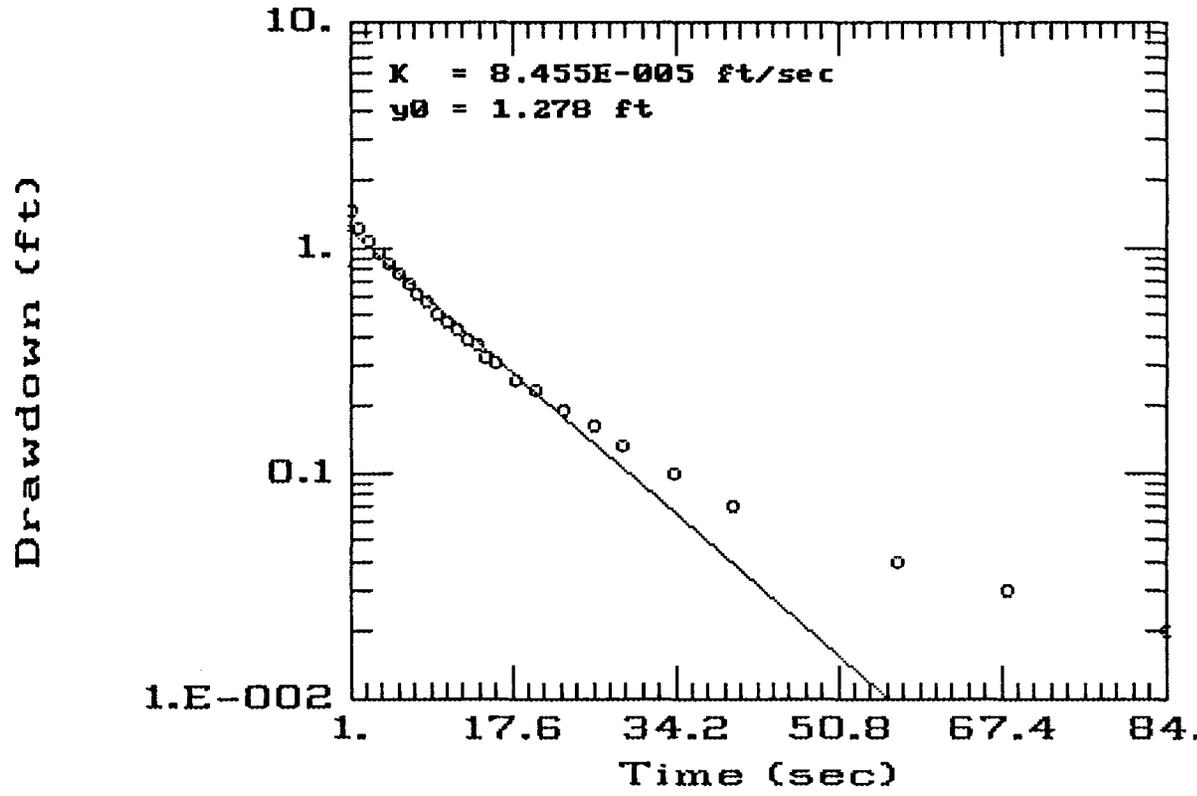
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& MILLER, INC.

Modeling Group

NCBC GULFPORT GPT-T340-8 RUN NO. 2



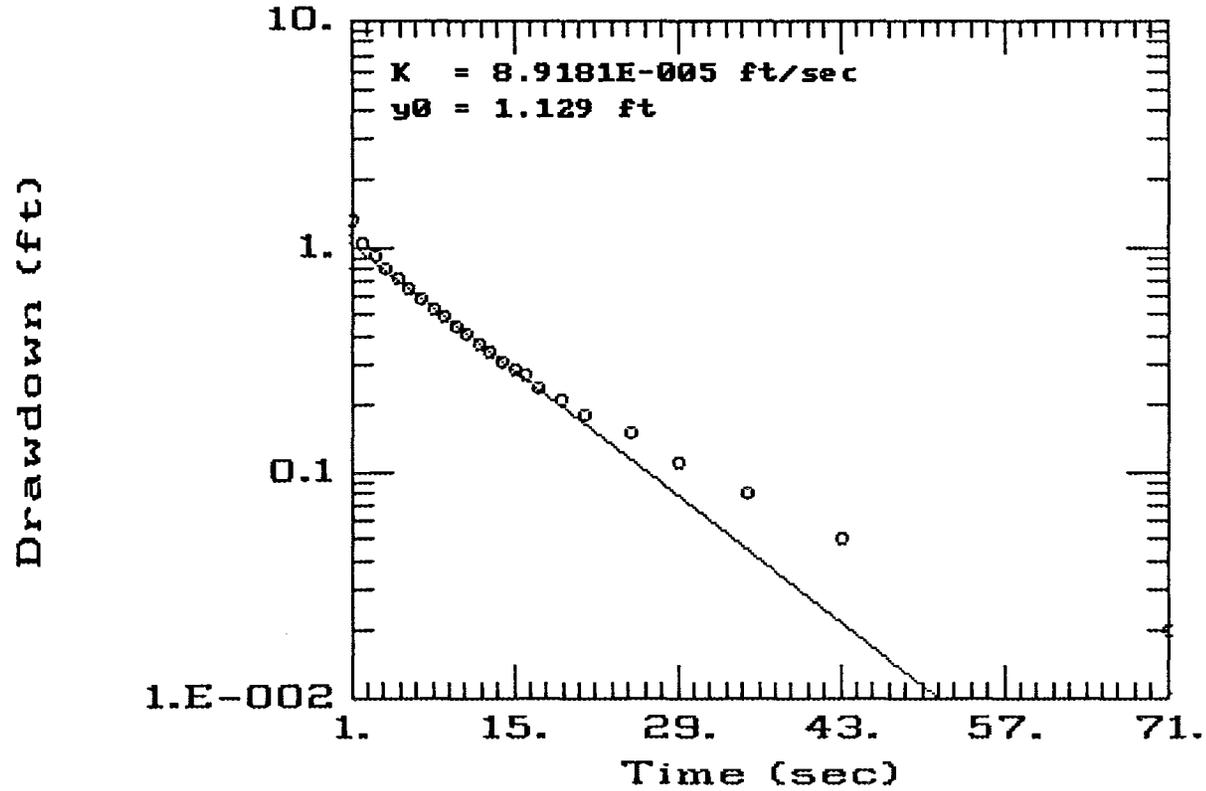
AQTESOLV



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& MILLER, INC.

Modeling Group

NCBC GULFPORT GPT-T340-8 RUN NO. 3



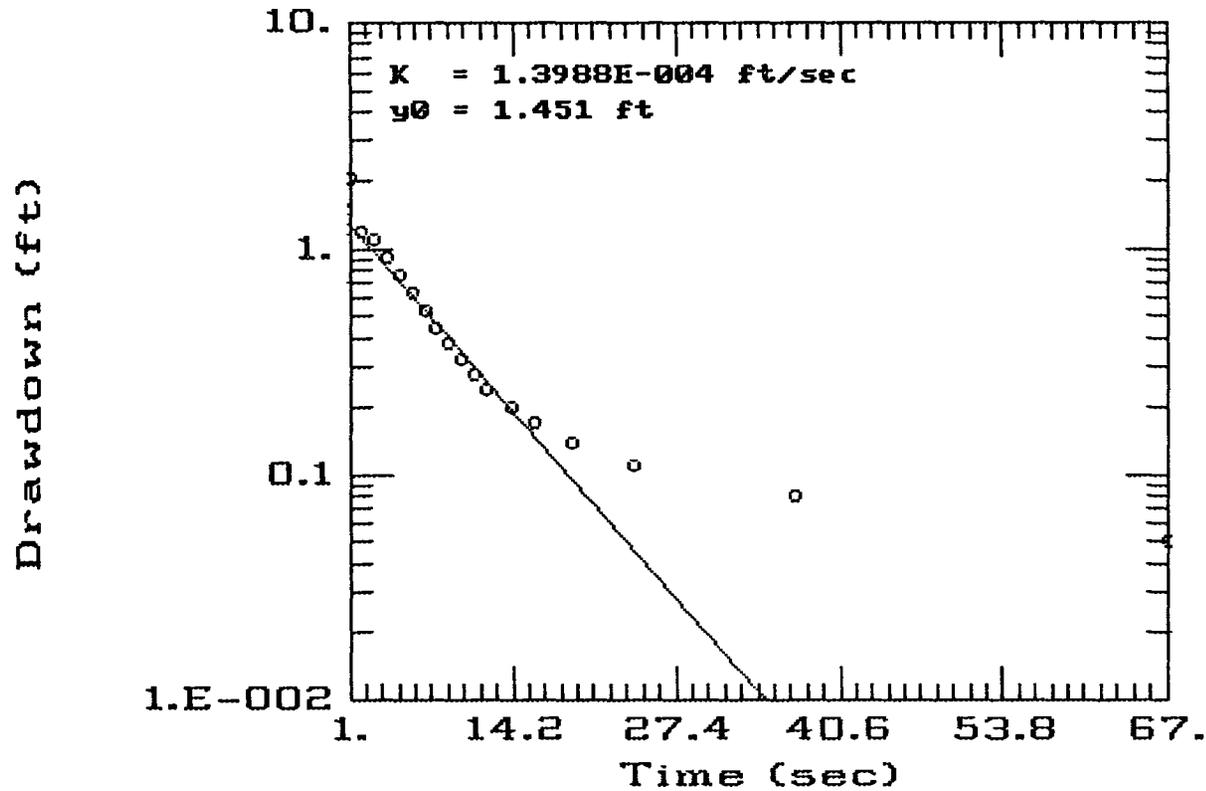
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GERAGHTY
& MILLER, INC.

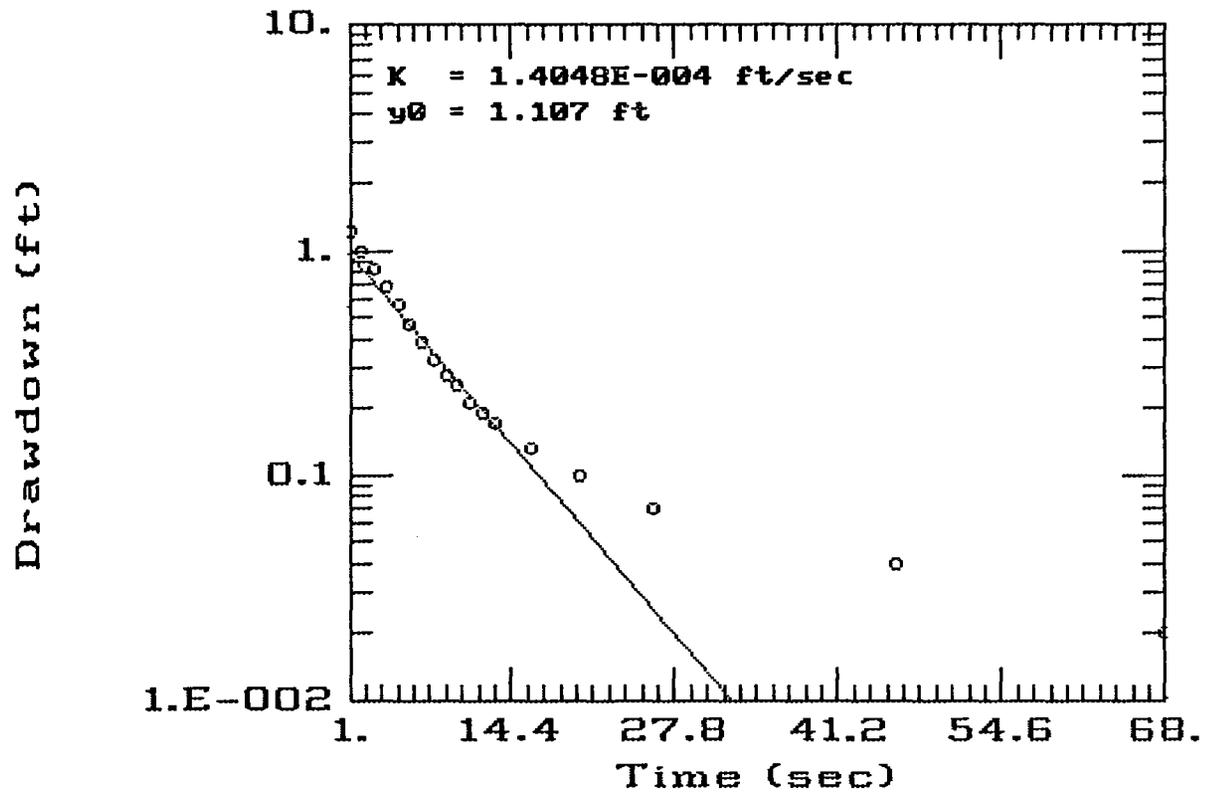
Modeling Group

NCBC GULFPORT GPT-T340-13 RUN NO. 1



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& MILLER, INC.
Modeling Group

NCBC GULFPORT GPT-T340-13 RUN NO. 2



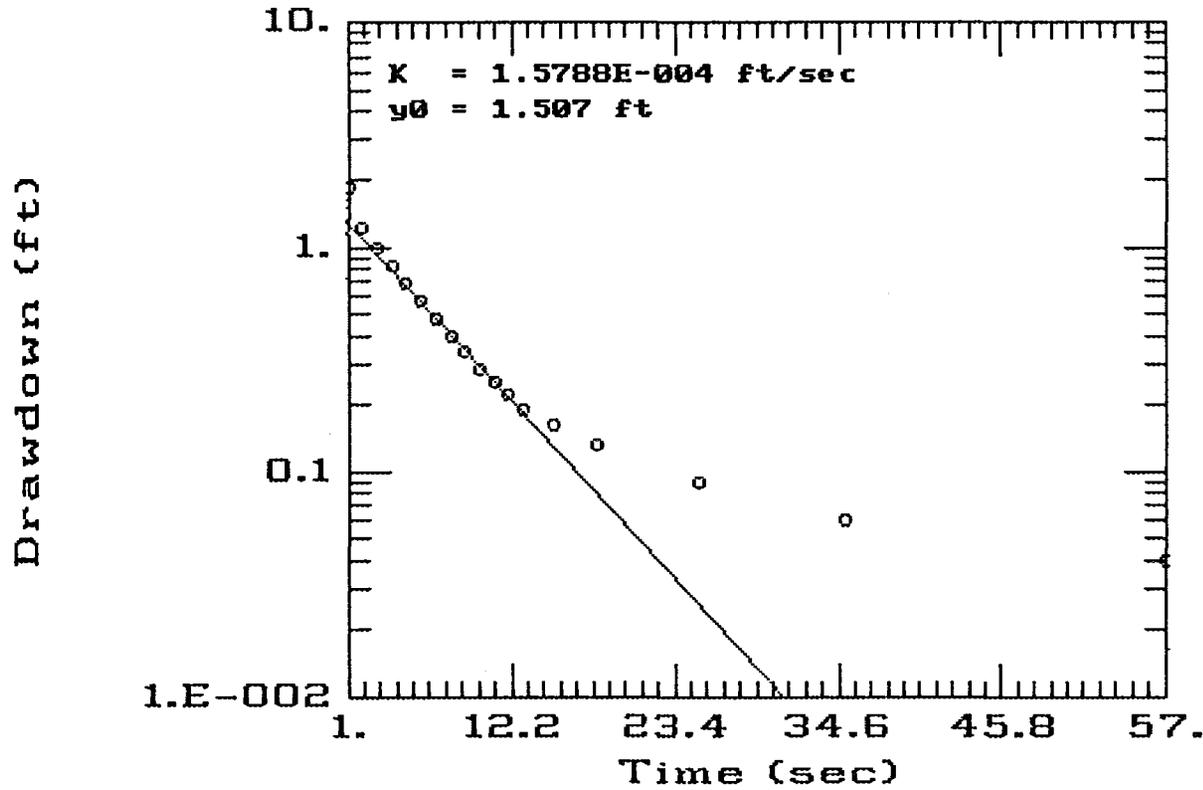
AQTESOLV



GERAGHTY & MILLER, INC.

Modeling Group

NCBC GULFPORT GPT-T340-13 RUN NO. 3



AQTESOLV



APPENDIX E
TANK TESTING DATA

GulfptDF.CAR
12.91 (CLEAN.01)



DEPARTMENT OF THE NAVY

NAVAL CONSTRUCTION BATTALION CENTER

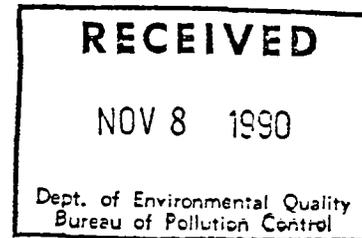
GULFPORT, MISSISSIPPI 39501-5000

IN REPLY REFER TO

5090/10
Ser 470.2/2761

7 NOV 1990

Mr. Larry Flint
Mississippi Department of
Environmental Quality
Bureau of Pollution Control
P.O. Box 10385
Jackson, MS 39289-0385



Dear Mr. Flint:

Reference is made to your telephone conversation with Mr. Tom Sarros of my staff on October 1, 1990, concerning the underground storage tanks at the Navy Exchange Service Station, Building 340, Naval Construction Battalion Center (CBC), Gulfport.

On September 28, 1990, the CBC Gulfport contractor, Petro Services, Inc., completed a tank tightness test at Building 340. Tank numbers 340-1 and 340-3 failed the test. Tank 340-2 passed the test. The results indicate that tank 340-1 is leaking at a rate of 1.25 gallons per hour under a normal load, and tank 340-3 is leaking at .75 to .95 gallons per hour. I enclose for your convenience the report received from Petro Services, Inc.

On September 29, 1990, the ground was excavated to the tops of the tanks to determine if the leaks were occurring at the tank bungs. This was not the source of the leaks. On October 1, 1990, the fuel in the two leaking tanks was removed, the tanks were triple rinsed and filled with water, and the holes were backfilled to cover the tanks.

We plan to replace the tanks as soon as funding can be obtained from our headquarters. We have determined that the soil around the tanks is contaminated, but the extent of the contamination is unknown at this time. Funding has been appropriated by our headquarters for a site assessment to determine the extent of the contamination and to remediate the site. The site assessment is tentatively scheduled to begin in January 1991. The remediation will occur as soon as possible after the extent of contamination is known.

Ser 470.2/2761

If you would like to discuss this issue, please call Mr. Tom Sarros at (601) 865-2243.

Sincerely,



J. D. FROST

Lieutenant Commander, U.S. Navy

Public Works Officer

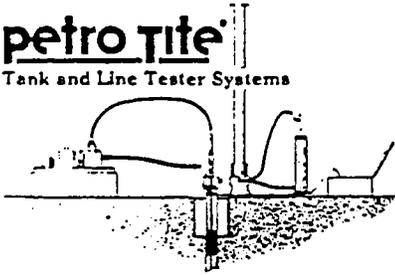
By direction of

the Commanding Officer

Encl:

- (1) Petro Services, Inc., Tank Tightness
Test Results of 28 September, 1990

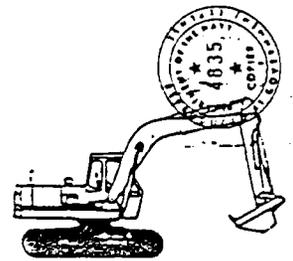
petro tite
Tank and Line Tester Systems



PETRO SERVICES, INC.

Post Office Box 3027
Gulfport, MS 39505
(601) 861-2151 / 832-3852 / 832-2151

October 1, 1990



Officer In Charge Of Construction
Building 322, Code 480
Naval Construction Battalion Center
Gulfport, Mississippi 39501-5000

Attention: Jo Ann Thompson

Re: Date Of Test: September 28, 1990
Location: Navy Exchange Bldg. 340

Gentlemen:

The National Fire Protection Association's criteria for a tight tank system is a system with a rate of leak less than plus/minus .050 gallons per hour for tank systems 12,500 gallons or less. These are calculated mathematical tolerances only and are not mean to indicate the permission of any leak.

The tanks tested at this location are identified as follows:

- Tank #1 10,000 gallons, Premium Gasoline.
Test terminated - out of tolerance.

- Tank #3 10,000 gallons, Unleaded Gasoline.
Test terminated - out of tolerance.

Enclosed herewith is a copy of our work sheets, as well as our statement for services rendered. We appreciate your business and hope to continue working with you in the future.

Sincerely,

PETRO SERVICES, INC.

/r1
Enclosures

ENCL (1)



Data Chart for Tank System Tightness Test

PLEASE PRINT

1. OWNER Property Tank(s)

Name: NAVY EXCHANGE Address: BLDG 340 Representative: WALTER RODE Telephone: 601 864 5527

2. OPERATOR

Name: WALTER RODE Address: SAME Telephone: SAME

3. REASON FOR TEST (Explain Fully)

RETEST ON TANKS 1 & 3 WHICH FAILED TEST OF 9-27-90

4. WHO REQUESTED TEST AND WHEN

Name: LT. JOHNSON Title: ASSISTANT P.W. OFFICER Company or Affiliation: US NAVY Date: 9-27-90

5. TANK INVOLVED	Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass
	<u>#1 EAST</u>	<u>10000</u>	<u>BP</u>	<u>PREM</u>	<u>20 YRS</u>	<u>STEEL</u>

6. INSTALLATION DATA	Location	Cover	Fills	Vents	Siphones	Pumps
	<u>SOUTH OF BLDG</u>	<u>CONCRETE</u>	<u>4" DROP TUBES REMOVED</u>	<u>2" SINGLE</u>	<u>NONE</u>	<u>TOKHEIM STP</u>

7. UNDERGROUND WATER

Depth to the water table _____

Is the water over the tank? Yes No

8. FILL-UP ARRANGEMENTS

Tanks to be filled _____ hr. _____ Date Arranged by WALTER RODE 601 864 5527

Extra product to "top off" and run tank tester. How and who to provide? Consider NO LEAD.

Terminal or other contact for notice or inquiry EAGLE ENERGY RUSSELL FAYARD 896 7252

9. CONTRACTOR, MECHANICS, any other contractor involved

N/A

10. OTHER INFORMATION OR REMARKS

TANKS #1 + 3 FAILED TO MEET CRITERIA ON TEST 9-26-90 UNCOVERED TO EXPOSE TOP OF TANKS FOR VISUAL EXAMINATION WHILE TEST IN PROGRESS

11. TEST RESULTS

Tests were made on the above tank systems in accordance with test procedures prescribed for as detailed on attached test charts with results as follows:

Tank Identification	Tight	Leakage Indicated	Date Tested
<u>#1 PREM</u>		<u>TEST TERMINATED</u>	<u>9-28-90</u>

12. SENSOR CERTIFICATION

Date: 10-17-89

Serial No. of Thermal Sensor: 1513

13. This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329.

Technicians

1. JAMES ALEXANDER PETRO SERVICES James Alexander
 Certification # 312 815 276 Testing Contractor or Company By: Signature

2. KIRK LABNER
 Certification # 312 815 245 Address: PO BOX 3027 GULFPORT MS. 39505



27. Sensor Calibration <i>16211, 16312</i>			30. HYDROSTATIC PRESSURE CONTROL		31. VOLUME MEASUREMENTS (V) RECORD TO .001 GAL.			34. TEMPERATURE COMPENSATION USE FACTOR (a)			38. NET VOLUME CHANGING EACH READING	39. ACCUMULATED CHANGE
LOG OF TEST PROCEDURES			29. Reading No.		32. Product in Graduate		33. Product Replaced (-)	35.	36.	37.	Temperature Adjustment	At Low Level computer Change per Hour (NFPA criteria)
DATE	Record details of setting up and running test. (Use full length of line if needed.)		Beginning of Reading	Level to which Restored	Before Reading	After Reading	Product Recovered (+)	Thermal Sensor Reading	Change Higher + Lower - (c)	Computation (c) = (a) * Expansion + Contraction -	Volume Minus Expansion (+) or Contraction (-) #33(V) - #37(1)	
TIME (24 Hr.)	#1											
0800												
1800												
1845												
1900												
2015												
									19	A.F. 0.222		
2016	FIRST SEVERAL READINGS	1		42		.930			902			
2030	START HIGH LEVEL TEST	2	38	42	.930	.700	-.230	895	-.07	-.155	-.075	
2045	CONTINUE HIGH LEVEL TEST	3	34	42	.700	.350	-.350	894	-.01	-.022	-.328	
2100	"	4	38.5	42	.350	.170	-.180	894	+00	+0000	-.140	
2115	"	5	39.5	42	.170	.040	-.110	894	+000	+0000	-.110	
2130	"	6	40.0	42	1.000	.950	-.005	892	-.02	-.1044	-.039	
2145	"	7	39.0	42	.950	.820	-.130	890	-.02	-.044	-.086	
2200		8	34.0	42	.820	.650	-.170	890	+00	+1000	-.170	
	DROP TO LOW LEVEL			12								
2215	Start Low level test	1	13.5	12	.020	1.040	+0.40	878	-.12	-.266	+0.310	SPRING
2230	Continue low level test	2	10.0	12	.040	1.000	-0.40	881	+0.03	+0.66	-.106	BACK
2235	Start 5 min readings	3	10.5	12	1.000	.900	-.100	868	-.13	-.288	+0.188	+0.148
2240	Continue low level test	4	11.2	12	.900	.890	-.010	868	100	+1.000	-.010	+0.178
2245	"	5	11.0	12	.890	.840	-.050	867	-.01	-.022	+0.012	+0.190
2250	"	6	11.0	12	.880	.840	-.040	867	100	+1.000	-.040	+0.150
2255	"	7	11.0	12	.840	.790	-.050	867	100	+1.000	-.050	+0.080
2300	"	8	11.0	12	.790	.750	-.040	860	-.07	-.155	-.115	-.035
2305	"	9	11.0	12	.750	.710	-.040	864	+04	+0.089	-.129	-.164
2310	"	10	11.0	12	.710	.670	-.040	857	-.07	-.155	-.115	-.289
2315	"	11	11.0	12	.670	.640	-.030	851	-.06	-.132	-.102	-.391
2320	"	12	11.0	12	.640	.590	-.050	847	-.04	-.089	+0.039	-.352
2325	"	13	11.0	12	.590	.540	-.050	846	-.01	-.022	-.028	-.380



Name of Supplier, Owner or Dealer	Address No. and Street(s)	City	State	Date of Test
15. TANK TO TEST <u>#1 EAST</u> <small>Identify by position</small> <u>BP - Premium</u> <small>Brand and Grade</small>	15a. BRIEF DIAGRAM OF TANK FIELD	16. CAPACITY Nominal Capacity <u>10,000</u> <small>Gallons</small> By most accurate capacity chart available <u>10,027</u> <small>Gallons</small>		From <input type="checkbox"/> Station Chart <input checked="" type="checkbox"/> Tank Manufacturer's Chart <input type="checkbox"/> Company Engineering Data <input type="checkbox"/> Charts supplied with <input type="checkbox"/> Other _____

17. FILL-UP FOR TEST Stick Water Bottom before Fill-up <u>JK</u> to <u>1/4"</u> in. <u>72</u> Gallons <u>96</u> Tank Diameter in.	Inventory <u>Gasoline</u> <u>10,027</u> Gallons <u>Water</u> <u>72</u> Gallons <u>TOP OFF</u> <u>25</u> Gallons <u>10,124</u> Gallons <small>Transfer total to line 25e</small>
------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK

See manual sections applicable. Check below and record procedure in log (27).

Use maximum allowable test pressure for all tests. Four pound rule does not apply to doublewalled tanks.

Complete section below:

1. Is four pound rule required? Yes No

2. Height to 12" mark from bottom of tank _____ in.

3. Pressure at bottom of tank _____ P.S.I.

4. Pressure at top of tank _____ P.S.I.

Water in tank Line(s) being tested with LVLLT
 High water table in tank excavation

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade* _____ in.
 Add 30" for "T" probe assy. _____ 30 in.
 Total tubing to assemble - approximate _____ in.

20. EXTENSION HOSE SETTING

Tank top to grade* _____ in.
 Extend hose on suction tube 6" or more below tank top _____ in.

*If fill pipe extends above grade, use top of fill.

22. Thermal-Sensor reading after circulation 19902 digits
83-84 °F
23. Digits per °F in range of expected change 304 digits

COEFFICIENT OF EXPANSION (Complete after circulation)

24a. Corrected A.P.I. Gravity
 Observed A.P.I. Gravity _____
 Hydrometer employed _____ H
 Observed Sample Temperature _____ °F
 Corrected A.P.I. Gravity @ 60°F. From Table A _____
 Coefficient of Expansion for Involved Product From Table B _____
 Transfer COE to Line 25h.

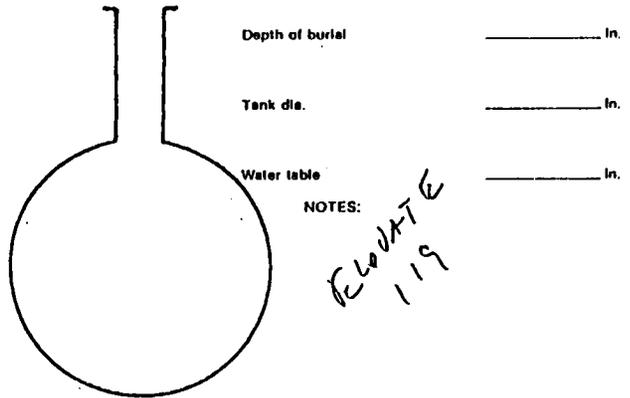
21. VAPOR RECOVERY SYSTEM Stage I Stage II

24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD

Type of Product Prem Gasoline
 Hydrometer Employed 6 H
 Temperature in Tank After Circulation 83.2 °F
 Temperature of Sample 82 °F
 Difference (+/-) -1.2 °F
 Observed A.P.I. Gravity 57
 Reciprocal 1497 Page # 61
10124 , 1497 = 6.762
 Total quantity in full tank (16 or 17) Reciprocal Volume change in this tank per °F
 Transfer to Line 25a.

24c. FOR TESTING WITH WATER see Table C & D

Water Temperature after Circulation Table C _____ °F
 Coefficient of Water Table D _____
 Added Surfactant? Yes No Transfer COE in Line 25h.



The above calculations are to be used for dry soil conditions to establish a positive pressure advantage, or when using the four pound rule to compensate for the presence of subsurface water in the tank area.

Refer to N.F.P.A. 30, Sections 2-3.2.4 and 2-7.2 and the tank manufacturer regarding allowable system test pressures.

25. (a) _____ x (b) _____ = (c) _____ gallons
Total quantity in full tank (16 or 17) Coefficient of expansion for involved product Volume change in this tank per °F

26. (a) 6.762 x (b) 304 = 2022.2
Volume change per °F (25 or 24b) Digits per °F in test Range (23) Volume change per digit Compute to 4 decimal places. This is test factor (a)

Data Chart for Tank System Tightness Test



PLEASE PRINT

1. OWNER Property <input checked="" type="checkbox"/> Tank(s) <input checked="" type="checkbox"/>	NAUT EXCHANGE BLDG 340 WALTER RODO 6018645527 <small>Name Address Representative Telephone</small>																					
2. OPERATOR	WALTER RODO Same Same <small>Name Address Telephone</small>																					
3. REASON FOR TEST (Explain Fully)	RE TEST ON TANKS #1 + 3 WHICH FAILED TEST OF 9-26-90																					
4. WHO REQUESTED TEST AND WHEN	LT JOHNSON ASSISTANT PW. OFFICER U.S. NAVY 9-27-90 <small>Name Title Company or Affiliation Date</small>																					
5. TANK INVOLVED <small>Use additional lines for manifolded tanks</small>	Identify by Direction #3 - WEST	Capacity 10,000	Brand/Supplier BIP	Grade ULL	Approx. Age 20 YRS	Steel/Fiberglass Steel																
6. INSTALLATION DATA	Location SOUTH OF BLDG <small>North inside driveway, Rear of station, etc.</small>	Cover CONCRETE <small>Concrete, Black Top, Earth, etc.</small>	Fills 4" DROP TUBES REMOVED <small>Size, Titefill make, Drop tubes, Remote Fills</small>	Vents 2" SINGLE <small>Size, Manifolded</small>	Siphones NONE <small>Which tanks?</small>	Pumps TOKHEIM STD <small>Suction, Remote, Make if known</small>																
7. UNDERGROUND WATER	Depth to the Water table _____ Is the water over the tank? <input type="checkbox"/> Yes <input type="checkbox"/> No																					
8. FILL-UP ARRANGEMENTS	Tanks to be filled _____ hr. _____ Date Arranged by _____ Extra product to "top off" and run tank tester. How and who to provide? Consider NO Lead.																					
9. CONTRACTOR, MECHANICS, any other contractor involved	N/A																					
10. OTHER INFORMATION OR REMARKS	TANKS #1 + 3 FAILED TO MEET CRITERIA ON TEST 9-26-90 UNCOVERED TANKS TO EXPOSE TOP OF TANKS FOR VISUAL EXAMINATION WHILE TEST IS IN PROGRESS <small>Additional information on any items above. Officials or others to be advised when testing is in progress or completed. Visitors or observers present during test, etc.</small>																					
11. TEST RESULTS	Tests were made on the above tank systems in accordance with test procedures prescribed for as detailed on attached test charts with results as follows:																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Tank Identification</th> <th style="width: 10%;">Tight</th> <th style="width: 30%;">Leakage Indicated</th> <th style="width: 30%;">Date Tested</th> </tr> </thead> <tbody> <tr> <td>#3 ULL</td> <td></td> <td>TEST TERMINATED</td> <td>9-28-90</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>							Tank Identification	Tight	Leakage Indicated	Date Tested	#3 ULL		TEST TERMINATED	9-28-90								
Tank Identification	Tight	Leakage Indicated	Date Tested																			
#3 ULL		TEST TERMINATED	9-28-90																			
12. SENSOR CERTIFICATION 10-17-90 Date 1543 Serial No. of Thermal Sensor	13. This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329. Technicians 1. JAMES ALEXANDER PETRO SERVICES INC. James Alexander Certification # 312 815 274 Testing Contractor or Company. By: Signature 2. KIRK LADNER PO BOX 3027 GULFPORT MS 39505 Certification # 312 815 285 Address																					



LOG OF TEST PROCEDURES

27. LOG OF TEST PROCEDURES		30. HYDROSTATIC PRESSURE CONTROL		31. VOLUME MEASUREMENTS (V) RECORD TO .001 GAL.			34. TEMPERATURE COMPENSATION USE FACTOR (a)			38. NET VOLUME CHANGING EACH READING	39. ACCUMULATED CHANGE	
TIME (24 hr.)	Record details of setting up and running test. (Use full length of line if needed.)	29. Reading No.	30. Standpipe Level in Inches		32. Product in Graduate		33. Product Replaced (-) / Product Recovered (+)	35. Thermal Sensor Reading	36. Change Higher + Lower - (c)	37. Computation (c) = (a) + Expansion - Contraction -	38. Temperature Adjustment Volume Minus Expansion (+) or Contraction (-) #3(XV) - #37(F)	39. At Low Level compute Change per Hour (NFPA criteria)
			Beginning of Reading	Level to which Restored	Before Reading	After Reading	Product Recovered (+)					
7:28-50	#3											
0800	ARRIVE JOB SITE - BREAK CONCRETE OVER TANK + REMOVE TOP OF TANK											
1800	PLUGGED TANK VENT, STP, AND DIP STICK BUNGS FINISHED TOPPING OFF TANK											
1845	SET UP TEST EQUIPMENT											
1900	PUMP PRIMING & RUNNING											
2025	TAKE API SAMPLES											
								18		A=.022		
2026	FIRST SENSOR READING	1	42	42	.970			783				
2030	START HIGH LEVEL TEST	2	41	42	.970	.930	-.040	783	+00	+1.000	-.040	
2045	CONTINUE HIGH LEVEL TEST	3	40.8	42	.930	.880	-.050	791	+08	+1.177	-.227	
2100		4	41.0	42	.880	.840	-.040	780	-.11	-.243	+0.203	
2115		5	41.0	42	.840	.800	-.040	780	+00	+1.000	-.040	
2130		6	41.0	42	.800	.770	-.030	784	+09	+1.088	-.118	
2145		7	41.0	42	.770	.730	-.040	784	+00	+1.000	-.040	
2200		8	41.0	42	.730	.690	-.040	781	-.03	-.066	+0.016	
	DROP TO LOW LEVEL			12								
2215	Start low level test	1	13.0	12	.060	.100	+0.040	776	-.05	-.111	+0.151	SPRING
2230	Continue low level test	2	11.7	12	.100	.090	-.010	780	+04	+1.084	-.098	BACK
2235	Start 5 min readings	3	11.7	12	.090	.080	-.010	771	-.09	-.199	+0.189	+0.189
2240	Continue low level test	4	11.7	12	.080	.070	-.010	771	+00	+1.000	-.010	+0.179
	" "	5	11.7	12	.070	.050	-.020	765	-.06	-.133	+0.113	+0.292
	" "	6	11.7	12	.050	.040	-.010	766	+01	+1.022	-.032	+0.260
	" "	7	11.7	12	.040	.020	-.020	769	+03	+1.066	-.040	+0.174
	" "	8	12.0	12	.930	.930	+1.000	769	+00	+1.000	+1.000	+0.174
	" "	9	11.5	12	.930	.910	-.020	768	-.01	-.022	+1.002	+0.176
	" "	10	11.8	12	.910	.890	-.020	769	+01	+1.022	+1.002	+0.174
	" "	11	12.0	12	.890	.890	+1.000	770	+01	+1.022	-.022	+0.152
	" "	12	11.5	12	.890	.860	-.030	771	+01	+1.022	-.052	+0.100
	" "	13	11.8	12	.860	.850	-.010	766	-.05	-.111	-.101	-.001



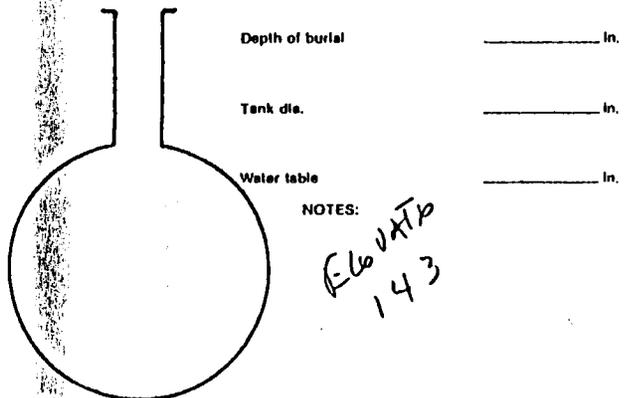
4.

Name of Supplier, Owner or Dealer	Address No. and Street(s)	City	State	Date of Test
15. TANK TO TEST #3 WEST Identity by position BP UL Brand and Grade	15a. BRIEF DIAGRAM OF TANK FIELD	16. CAPACITY Nominal Capacity 10000 Gallons By most accurate capacity chart available 10152 Gallons		From <input type="checkbox"/> Station Chart <input checked="" type="checkbox"/> Tank Manufacturer's Chart <input type="checkbox"/> Company Engineering Data <input type="checkbox"/> Charts supplied with <input type="checkbox"/> Other

17. FILL-UP FOR TEST		Total Gallons as Reading
Slick Water Bottom before Fill-up 3 to 4" in.	93 Gallons	Inventory
	Tank Diameter 96 in.	Gasolene 10,152
		Water 93
		TOP OFF 15
		10,260
		Transfer total to line 25a

18. SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK Water in tank Line(s) being tested with LVLLT
 High water table in tank excavation
 See manual sections applicable. Check below and record procedure in log (27).
 Use maximum allowable test pressure for all tests. Four pound rule does not apply to doublewalled tanks.
 Complete section below:

- 1. Is four pound rule required? Yes No
- 2. Height to 12" mark from bottom of tank _____ in.
- 3. Pressure at bottom of tank _____ P.S.I.
- 4. Pressure at top of tank _____ P.S.I.



The above calculations are to be used for dry soil conditions to establish a positive pressure advantage, or when using the four pound rule to compensate for the presence of subsurface water in the tank area.
 Refer to N.F.P.A. 30, Sections 2-3.2.4 and 2-7.2 and the tank manufacturer regarding allowable system test pressures.

19. TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade* _____ in.
 Add 30" for "T" probe assy. _____ 30 in.
 Total tubing to assemble - approximate _____ in.

20. EXTENSION HOSE SETTING

Tank top to grade* _____ in.
 Extend hose on suction tube 6" or more
 below tank top _____ in.
 *If Fill pipe extends above grade, use top of fill.

22. Thermal-Sensor reading after circulation 18783 digits
 79-80 °F
23. Digits per °F in range of expected change 318 digits

COEFFICIENT OF EXPANSION (Complete after circulation)

24a. Corrected A.P.I. Gravity
 Observed A.P.I. Gravity _____
 Hydrometer employed _____ H
 Observed Sample Temperature _____ °F
 Corrected A.P.I. Gravity @ 60°F, From Table A _____
 Coefficient of Expansion for Involved Product From Table B _____
 Transfer COE to Line 25b.

21. VAPOR RECOVERY SYSTEM Stage I Stage II N/A

24b. COEFFICIENT OF EXPANSION RECIPROCAL METHOD

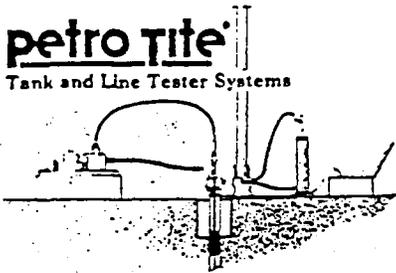
Type of Product UL Gasolene
 Hydrometer Employed 7 H
 Temperature In Tank After Circulation 79.6 °F
 Temperature of Sample 81 °F
 Difference (+/-) +1.4 °F
 Observed A.P.I. Gravity 61.8
 Reciprocal 1444 Page # 65
10152 / 1444 = 7.030
 Total quantity in full tank (16 or 17) Reciprocal Volume change in this tank per °F
 Transfer to Line 25a

24c. FOR TESTING WITH WATER see Table C & D

Water Temperature after Circulation Table C _____ °F
 Coefficient of Water Table D _____
 Added Surfactant? Yes No Transfer COE to Line 25b.

25. (a) _____ x (b) _____ = (c) _____ gallons
 Total quantity in full tank (16 or 17) Coefficient of expansion for involved product Volume change in this tank per °F
 26. (a) 7.030 (b) 318 = 1.0221
 Volume change per °F (25 or 24b) Digits per °F in test Range (23) Volume change per digit Compute to 4 decimal places. This is test factor (e)

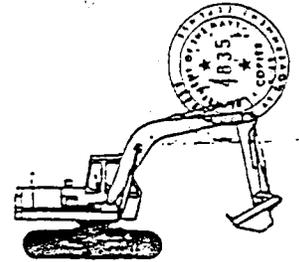
petro tite
Tank and Line Tester Systems



PETRO SERVICES, INC.

Post Office Box 3027
Gulfport, MS 39505
(601) 861-2151 / 832-3852 / 832-2151

October 5, 1990



Officer in Charge of Construction
Building 322, Code 480
Naval Construction Battalion Center
Gulfport, Mississippi 39501-5000

Re: Contract N62467-90-M-8245, Repair leaks
On Underground Fuel Storage Tanks

Gentlemen:

The National Fire Protection Association's criteria for a tight STP discharge line is a line with a rate of leak less than plus/minus .010 gallons per hour, with the test pressure to be one and a half times the STP working pressure

The lines tested at this location are identified as follows:

Line #1 Unleaded Gasoline - Met criteria with a -.0020 GPH

Line #3 Unleaded Gasoline - Met criteria with a +.0005 GPH

The SRP discharge pressure is 30 PSI, and the lines were tested at 45 PSI.

Enclosed herewith is a copy of our work sheets. Our statement for services rendered is also enclosed. We appreciate your business, and hope to continue working with you in the future.

Sincerely,

PETRO SERVICES, INC.

/rl
Enclosures



Year 90 Name WAVE No. 10 Day 3 LOCATION Subplot OWNER Wave Exchange

DATA CHART
For Use With

petro tile
100 TESTS

1 LOCATION: Perry Ave + Second St Subplot MS 6018645527
Street No. and/or Corner City State Telephone No.

2 OWNER: Wave Exchange Bldg 340 Walter Rode Mgr 6018645527
Name Address Representative Position Telephone No.

3 OPERATOR: Walter Rode Mgr Same Same
Name Dealer, Mgr. or Other Address (if different than Location) Telephone No.

4 REASON FOR TEST: Leak all lines to + stop. Retest for tightness

5 TEST REQUESTED BY: Sam Aaron P.W.D. E.P.A. officer in Charge of Cont. Code
Name Position Order No. Billing Address

6 SPECIAL INSTRUCTIONS: Make all dispensers - Dispense off + STP.

7 CONTRACTOR OR COMPANY MAKING TEST MECHANIC(S) NAME: Petro American Inc James Alexander

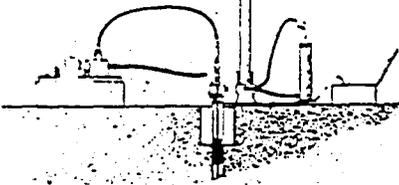
8 IS A TANK TEST TO BE MADE WITH THIS LINE TEST? YES NO

9 MAKE AND TYPE OF PUMP OR DISPENSERS: Wayne / Lubbering

10 WEATHER: P.C. Hot 86 TEMPERATURE IN TANKS _____ °F _____ °C
 COVER OVER LINES: Concrete Asphalt APPROXIMATE BURIAL DEPTH: 30"
Concrete, Black Top, etc.

11 IDENTIFY EACH LINE AS TESTED	12 TIME (MILITARY)	13 LOG OF TEST PROCEDURES, AMBIENT TEMPERATURE, WEATHER, ETC.	14 PRESSURE		15 VOLUME		16 TEST RESULTS	
			psi OR kPa		READING			NET CHANGE
			BEFORE	AFTER	BEFORE	AFTER		
#1	1015	Start line test		45		.0740	} -.0020 line tight	
	1030	Continue line test	.40	45	.0740	.0730		-0.0010
	1045	" "	.42	45	.0730	.0725		-0.0005
	1100	" "	.43	45	.0725	.0720		-0.0005
	1115	End line test	.44	45	.0720	.0720		+0.0000
		Bled back check	.45	00	.0950	.0940	-0.0010	OK

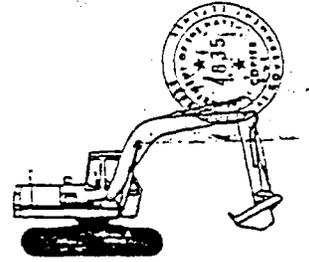
petro tite
Tank and Line Tester Systems



PETRO SERVICES, INC.

Post Office Box 3027
Gulfport, MS 39505
(601) 861-2151 / 832-3852 / 832-2151

October 5, 1990



Officer In Charge of Construction
Building 322, Code 480
Naval Construction Battalion Center
Gulfport, Mississippi 39501-5000

Re: Contract N62467-90-M-8245, Repair leaks
on Underground Fuel Storage Tanks

Gentlemen:

The National Fire Protection Association's criteria for a tight STP discharge line is a line with a rate of leak less than plus/minus .010 gallons per hour, with the test pressure to be one and a half times the STP working pressure.

The lines tested at this location are identified as follows:

- Line #1 Premium Gasoline - Met criteria with a -.0070 GPH
- Line #2 Unleaded Plus - Met criteria with a -.0055 GPH
- Line #3 Unleaded Gasoline - Met criteria with a .0060 GPH

The STP discharge pressure is 30 PSI, and the lines were tested at 45 PSI.

Enclosed herewith is a copy of our work sheets. Our statement for services rendered is also enclosed. We appreciate your business and hope to continue working with you in the future.

Sincerely,

PETRO SERVICES, INC.

/rl
enclosures



1930	11	"	43.5	45	.0615	.0590	-.0025
1945	11	"	43.8	45	.0550	.0535	-.0015
2000	11	"	44	45	.0515	.0510	-.0005

- .005 in. My. i

Bleed Back Check 45 00 .0845 .0835 -.0010 OK

#366	1900	Start line test		45		.0640		
	1915	Continue line test	44	45	.0640	.0625	-.0015	
	1930	11	4	43.8	45	.0625	.0615	-.0010
	1945	11	4	43.5	45	.0535	.0525	-.0010
	2000	11	4	44	45	.0525	.0500	-.0025

- .0060 line height

Bleed back check 45 00 .0835 .0820 -.0015 OK

APPENDIX F
LABORATORY ANALYTICAL SHEETS



WADSWORTH/ALERT
LABORATORIES, INC. 5910 Breckenridge Pkwy., Suite H, Tampa, FL 33610

Sampling, testing, mobile labs

Since 1938

ANALYTICAL REPORT

SUBCONTRACT NUMBER: 1-08-134

TASK ORDER NUMBER: 0002

GULFPORT, MISSISSIPPI

Presented to:

PETER REDFERN

ABB ENVIRONMENTAL SERVICES, INC.

WADSWORTH/ALERT LABORATORIES, INC.

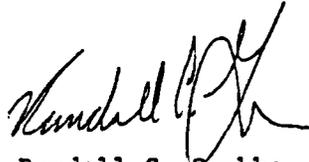
5910 BRECKENRIDGE PARKWAY, SUITE H

TAMPA, FL 33610

(813) 621-0784


Dan Henson

Project Manager



Randall C. Grubbs
Laboratory Director - Florida

September 12, 1991



HEADQUARTERS AND
LABORATORY
P.O. Box 2912
4101 Shuffel Drive, N.W.
North Canton, OH 44720
(216) 497-9396

REGIONAL
LABORATORY
P.O. Box 31454
5405 Schaaf Rd.
Cleveland, OH 44131
(216) 642-9151

REGIONAL
OFFICE
1445 Pispah Church Rd.
Lexington, SC 29072
(803) 957-8590

REGIONAL
LABORATORY
5910 Breckenridge Pkwy
Suite H
Tampa, FL 33610
(813) 621-0784



WADSWORTH/ALERT
LABORATORIES, INC.

INVOLVEMENT

This report summarizes the analytical results of the Gulfport, MS site submitted by ABB Environmental Services, Inc. to Wadsworth/ALERT Laboratories, Inc. who provided independent, analytical services for this project under the direction of Peter Redfern. The samples were accepted into Wadsworth's Florida facility on 29 August 1991, in accordance with documented sample acceptance procedures. The associated analytical methods and sample results are outlined sequentially in this report.

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



WADSWORTH/ALERT
LABORATORIES, INC.

ANALYTICAL METHODS

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

PARAMETER	METHOD

ORGANICS	
Volatile Organics	** EPA Method 601/2
Ethylene Dibromide	** EPA Method 601 Mod.
Polynuclear Aromatic Hydrocarbons	** EPA Method 625
METALS	
Lead	** EPA Method 239.2
MISCELLANEOUS	
Tot. Recov. Pet. Hydrocarbons	** EPA Method 418.1

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

EPA Methods -Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982
Drinking Waters USEPA, 600/4-88/039, December, 1988.

Std. Methods -Standard Methods for the Examination of Water and Wastewater, APHA, 16th edition, 1985.

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

SW846 Methods -Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.

ASTM Methods -American Society for Testing and Materials.

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



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-1
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-5

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	106	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-1
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-5 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-1
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-5 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	43	(22-135)	(10-155)
Fluorobiphenyl	46	(34-140)	(12-153)
Terphenyl-d14	40	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-1
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-5

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-1
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-5 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-2
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 3/91

SAMPLE ID: GPT-T340-6

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

Benzene	1200	1,2-Dichloroethane	ND
Bromodichloromethane	ND	1,1-Dichloroethene	ND
Bromoform	ND	1,2-Dichloroethene (Total)	ND
Bromomethane	ND	1,2-Dichloropropane	ND
Carbon tetrachloride	ND	cis-1,3-Dichloropropene	ND
Chlorobenzene	ND	trans-1,3-Dichloropropene	ND
Chloroethane	ND	Ethylbenzene	100
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	Toluene	ND
1,2-Dichlorobenzene	ND	1,1,1-Trichloroethane	ND
1,3-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,4-Dichlorobenzene	ND	Trichloroethene	ND
Dichlorodifluoromethane	ND	Trichlorofluoromethane	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
		Xylenes	240
		Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 50 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	106	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-2
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-6

GULFPORT, MS PROJ. #7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-2
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-6

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

POLYNUCLEAR AROMATIC HYDROCARBONS

HRS84297

METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	14
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	38	(22-135)	(10-155)
Fluorobiphenyl	43	(34-140)	(12-153)
Terphenyl-d14	41	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 1H2905-2
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-6

GULFPORT, MS PROJ. #7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-2
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-6 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-3
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-7

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	108	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-3
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-7 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	0.03	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-3
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-7 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	37	(22-135)	(10-155)
Fluorobiphenyl	44	(34-140)	(12-153)
Terphenyl-d14	34	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-3
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-7

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-3
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-7 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-4
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 3/91

SAMPLE ID: GPT-T340-8

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

Benzene	3100	1,2-Dichloroethane	ND
Bromodichloromethane	ND	1,1-Dichloroethene	ND
Bromoform	ND	1,2-Dichloroethene (Total)	ND
Bromomethane	ND	1,2-Dichloropropane	ND
Carbon tetrachloride	ND	cis-1,3-Dichloropropene	ND
Chlorobenzene	ND	trans-1,3-Dichloropropene	ND
Chloroethane	ND	Ethylbenzene	290
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	Toluene	980
1,2-Dichlorobenzene	ND	1,1,1-Trichloroethane	ND
1,3-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,4-Dichlorobenzene	ND	Trichloroethene	ND
Dichlorodifluoromethane	ND	Trichlorofluoromethane	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
		Xylenes	890
		Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 200 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	106	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-4
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-8 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	0.05	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-4
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-8

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

POLYNUCLEAR AROMATIC HYDROCARBONS

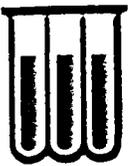
HRS84297

METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	10
2-Methylnaphthalene	11
Naphthalene	52
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	36	(22-135)	(10-155)
Fluorobiphenyl	49	(34-140)	(12-153)
Terphenyl-d14	30	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 1H2905-4
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-8

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	5	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-4
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-8

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	2	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-5
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 3/91

SAMPLE ID: GPT-T340-9

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

Benzene	8200	1,2-Dichloroethane	ND
Bromodichloromethane	ND	1,1-Dichloroethene	ND
Bromoform	ND	1,2-Dichloroethene (Total)	ND
Bromomethane	ND	1,2-Dichloropropane	ND
Carbon tetrachloride	ND	cis-1,3-Dichloropropene	ND
Chlorobenzene	ND	trans-1,3-Dichloropropene	ND
Chloroethane	ND	Ethylbenzene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	Toluene	ND
1,2-Dichlorobenzene	ND	1,1,1-Trichloroethane	ND
1,3-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,4-Dichlorobenzene	ND	Trichloroethene	ND
Dichlorodifluoromethane	ND	Trichlorofluoromethane	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
		Xylenes	1300
		Methyl-tert-butylether	3500

NOTE: ND (None Detected, lower detectable limit = 500 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	113	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-5
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-9 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-5
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-9 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS
METHOD 625 HSL/TCL LIST - GC/MS
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	30
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	30	(22-135)	(10-155)
Fluorobiphenyl	38	(34-140)	(12-153)
Terphenyl-d14	39	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 1H2905-5
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-9

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

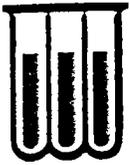
METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Lead	9/ 4/91	52	10	ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-5
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-9 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	2	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-6
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-10 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-6
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-10 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	40	(22-135)	(10-155)
Fluorobiphenyl	44	(34-140)	(12-153)
Terphenyl-d14	34	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-6
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 3/91

SAMPLE ID: GPT-T340-10

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	110	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-6
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-10 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-6
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-10 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-7
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-11 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	108	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-7
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-11 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-7
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-11 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	36	(22-135)	(10-155)
Fluorobiphenyl	46	(34-140)	(12-153)
Terphenyl-d14	53	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 1H2905-7
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-11

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT

HRS84297

SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-7
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-11 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-8
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-12

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	112	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-8
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-12 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-8
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-12 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	32	(22-135)	(10-155)
Fluorobiphenyl	41	(34-140)	(12-153)
Terphenyl-d14	37	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-8
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-12

GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059

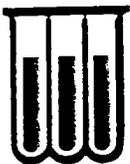
METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Lead	9/ 4/91	5	5	ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-8
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-12 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-9
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 3/91

SAMPLE ID: GPT-T340-13

GULFPORT, MS PROJ. #7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

Benzene	1400	1,2-Dichloroethane	ND
Bromodichloromethane	ND	1,1-Dichloroethene	ND
Bromoform	ND	1,2-Dichloroethene (Total)	ND
Bromomethane	ND	1,2-Dichloropropane	ND
Carbon tetrachloride	ND	cis-1,3-Dichloropropene	ND
Chlorobenzene	ND	trans-1,3-Dichloropropene	ND
Chloroethane	ND	Ethylbenzene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	Toluene	ND
1,2-Dichlorobenzene	ND	1,1,1-Trichloroethane	ND
1,3-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,4-Dichlorobenzene	ND	Trichloroethene	ND
Dichlorodifluoromethane	ND	Trichlorofluoromethane	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
		Xylenes	ND
		Methyl-tert-butylether	1800

NOTE: ND (None Detected, lower detectable limit = 100 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	103	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-9
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-13 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-9
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-13 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

POLYNUCLEAR AROMATIC HYDROCARBONS
METHOD 625 HSL/TCL LIST - GC/MS

HRS84297

Acenaphthene	30
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	17
Phenanthrene	ND
Pyrene	33

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	48	(22-135)	(10-155)
Fluorobiphenyl	50	(34-140)	(12-153)
Terphenyl-d14	41	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-9
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-13

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-9
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-13 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	1	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-10
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-14

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	104	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-10
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-14 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-10
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-14 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

POLYNUCLEAR AROMATIC HYDROCARBONS
METHOD 625 HSL/TCL LIST - GC/MS

HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	42	(22-135)	(10-155)
Fluorobiphenyl	46	(34-140)	(12-153)
Terphenyl-d14	38	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-10
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-14

GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

METALS ANALYTICAL REPORT
SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Lead	9/ 4/91	ND	5	ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-10
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-14 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-11
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 3/91

SAMPLE ID: GPT-T340-15

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

Benzene	ND	1,2-Dichloroethane	ND
Bromodichloromethane	ND	1,1-Dichloroethene	ND
Bromoform	ND	1,2-Dichloroethene (Total)	ND
Bromomethane	ND	1,2-Dichloropropane	ND
Carbon tetrachloride	ND	cis-1,3-Dichloropropene	ND
Chlorobenzene	ND	trans-1,3-Dichloropropene	ND
Chloroethane	ND	Ethylbenzene	ND
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	Toluene	ND
1,2-Dichlorobenzene	ND	1,1,1-Trichloroethane	ND
1,3-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,4-Dichlorobenzene	ND	Trichloroethene	ND
Dichlorodifluoromethane	ND	Trichlorofluoromethane	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
		Xylenes	ND
		Methyl-tert-butylether	260

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	98	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-11
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-15 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-11
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-15 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

POLYNUCLEAR AROMATIC HYDROCARBONS

HRS84297

METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	38	(22-135)	(10-155)
Fluorobiphenyl	46	(34-140)	(12-153)
Terphenyl-d14	46	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES; INC.
LAB #: 1H2905-11
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-15

GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-11
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-15 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-12
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-16

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	111	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-12
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-16 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-12
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-16 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	31	(22-135)	(10-155)
Fluorobiphenyl	39	(34-140)	(12-153)
Terphenyl-d14	45	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-12
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-16 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

METALS ANALYTICAL REPORT
SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Lead	9/ 4/91	ND	5	ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-12
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-16 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-13
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-17 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	102	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-13
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-17 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-13
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-17 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	30	(22-135)	(10-155)
Fluorobiphenyl	41	(34-140)	(12-153)
Terphenyl-d14	43	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-13
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-17

GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

METALS ANALYTICAL REPORT
SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Lead	9/ 4/91	ND	5	ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-13
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-17 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-14
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-DW1 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	102	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-14
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-DW1 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-14
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-DW1 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	38	(22-135)	(10-155)
Fluorobiphenyl	54	(34-140)	(12-153)
Terphenyl-d14	38	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-14
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-DW1 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

METALS ANALYTICAL REPORT
SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-14
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-DW1 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-15
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 4/91

SAMPLE ID: GPT-T340-DUP1 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

Benzene	1200	1,2-Dichloroethane	ND
Bromodichloromethane	ND	1,1-Dichloroethene	ND
Bromoform	ND	1,2-Dichloroethene (Total)	ND
Bromomethane	ND	1,2-Dichloropropane	ND
Carbon tetrachloride	ND	cis-1,3-Dichloropropene	ND
Chlorobenzene	ND	trans-1,3-Dichloropropene	ND
Chloroethane	ND	Ethylbenzene	100
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	Toluene	ND
1,2-Dichlorobenzene	ND	1,1,1-Trichloroethane	ND
1,3-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,4-Dichlorobenzene	ND	Trichloroethene	ND
Dichlorodifluoromethane	ND	Trichlorofluoromethane	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
		Xylenes	240
		Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 50 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	110	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-15
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-DUP1 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-15
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-DUP1 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

POLYNUCLEAR AROMATIC HYDROCARBONS
METHOD 625 HSL/TCL LIST - GC/MS

HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	34	(22-135)	(10-155)
Fluorobiphenyl	42	(34-140)	(12-153)
Terphenyl-d14	36	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-15
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-DUP1 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

METALS ANALYTICAL REPORT
SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-15
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

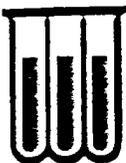
SAMPLE ID: GPT-T340-DUP1 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-16
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 4/91

SAMPLE ID: GPT-T340-DUP2 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

Benzene	2100	1,2-Dichloroethane	ND
Bromodichloromethane	ND	1,1-Dichloroethene	ND
Bromoform	ND	1,2-Dichloroethene (Total)	ND
Bromomethane	ND	1,2-Dichloropropane	ND
Carbon tetrachloride	ND	cis-1,3-Dichloropropene	ND
Chlorobenzene	ND	trans-1,3-Dichloropropene	ND
Chloroethane	ND	Ethylbenzene	160
2-Chloroethylvinyl ether	ND	Methylene chloride	ND
Chloroform	ND	1,1,2,2-Tetrachloroethane	ND
Chloromethane	ND	Tetrachloroethene	ND
Dibromochloromethane	ND	Toluene	ND
1,2-Dichlorobenzene	ND	1,1,1-Trichloroethane	ND
1,3-Dichlorobenzene	ND	1,1,2-Trichloroethane	ND
1,4-Dichlorobenzene	ND	Trichloroethene	ND
Dichlorodifluoromethane	ND	Trichlorofluoromethane	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
		Xylenes	140
		Methyl-tert-butylether	2000

NOTE: ND (None Detected, lower detectable limit = 100 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	107	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-16
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-DUP2 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-16
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-DUP2 GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS
METHOD 625 HSL/TCL LIST - GC/MS
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
 ND* (None Detected, lower detectable limit = ug/L) as rec'd
 -- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	33	(22-135)	(10-155)
Fluorobiphenyl	40	(34-140)	(12-153)
Terphenyl-d14	38	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-16
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-DUP2 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

METALS ANALYTICAL REPORT
SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-16
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-DUP2 GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-17
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-EQUIP BLANK GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	113	(78-122)
Trifluorotoluene (PID)	100	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-17
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-EQUIP BLANK GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-17
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: GPT-T340-EQUIP BLANK GULFPORT,MS PROJ.#7521-30

CERTIFICATION #: E84059

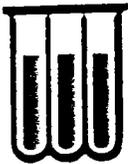
POLYNUCLEAR AROMATIC HYDROCARBONS
METHOD 625 HSL/TCL LIST - GC/MS

HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	36	(22-135)	(10-155)
Fluorobiphenyl	44	(34-140)	(12-153)
Terphenyl-d14	60	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB # : 1H2905-17
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : GPT-T340-EQUIP BLANK

GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT
SELECTED LIST

HRS84297

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Lead	9/ 4/91	ND	5 ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-17
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: GPT-T340-EQUIP BLANK GULFPORT,MS PROJ.#7521-30
CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-18
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: GPT-T340-TRIP BLANK GULFPORT, MS PROJ.#7521-30

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	102	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

QUALITY CONTROL SECTION

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



QUALITY ASSURANCE / QUALITY CONTROL
PROGRAM SUMMARY

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

Surrogate Spike Recovery Evaluations

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

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

Laboratory Analytical Method Blank Evaluations

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

Volatiles

Methylene chloride
Toluene
2-Butanone
Acetone

Semi-volatiles

Dimethyl phthalate
Diethyl phthalate
Di-n-butyl phthalate
Butyl benzyl phthalate
Bis (2-ethylhexyl) phthalate

Metals

Calcium
Magnesium
Sodium

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

Laboratory Analytical Method Check Sample Evaluations

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



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

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

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

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

*****EXAMPLE*****

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

Analytical Result Qualifiers

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

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

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

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



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-BK
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 8/31/91

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	117	(78-122)
Trifluorotoluene (PID)	99	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB # 1H2905-BK
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/ 3/91

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059
HRS84297

VOLATILE ORGANICS
METHOD 601/602 - GC

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

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

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Bromochloromethane (HECD)	101	(78-122)
Trifluorotoluene (PID)	98	(73-131)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-BK
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 9/10/91

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

PARAMETER	RESULT (ug/L)	DETECTION LIMIT
Ethylene dibromide	ND	0.02

NOTE: ND (None Detected) as rec'd
J (Detected, but below quantitation limit; estimated value)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-BK
MATRIX: WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 8/30/91
DATE ANALYZED: 9/10/91

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059
POLYNUCLEAR AROMATIC HYDROCARBONS HRS84297
METHOD 625 HSL/TCL LIST - GC/MS

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd
ND* (None Detected, lower detectable limit = ug/L) as rec'd
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	49	(22-135)	(10-155)
Fluorobiphenyl	46	(34-140)	(12-153)
Terphenyl-d14	68	(10-132)	(13-140)



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.
LAB #: 1H2905-BK
MATRIX : WATER

DATE RECEIVED: 8/29/91

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059
HRS84297

METALS ANALYTICAL REPORT
SELECTED LIST

Dissolved metals analysis results

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Lead	9/ 4/91	ND	5	ug/L

NOTE: ND (None Detected) as rec'd



WADSWORTH/ALERT
LABORATORIES, INC.

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.
LAB ID: 1H2905-BK
MATRIX : WATER

DATE RECEIVED: 8/29/91
DATE EXTRACTED: 9/ 9/91
DATE ANALYZED: 9/ 9/91

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059
HRS84297

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS REPORT

	RESULT	UNITS	LOWER DETECTION LIMIT
Total Recoverable Petroleum Hydrocarbons	ND	mg/L	1

NOTE: ND (None Detected)



WADSWORTH/ALERT
LABORATORIES, INC.

LAB #: 1H2905-LCS
MATRIX: WATER
METHOD: 601/2

DATE RECEIVED: 08/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 08/31/91

LABORATORY CHECK SAMPLE

COMPOUND	LCS %REC	QC LIMITS %RECOVERY
1,1-Dichloroethene	142	50-151
Trichloroethene	122	82-129
Chlorobenzene	99	75-120
Toluene	105	80-108
Benzene	112	77-122
Dichlorobromomethane	89	84-132



WADSWORTH/ALERT
LABORATORIES, INC.

LAB #: 1H2905-LCS
MATRIX: WATER
METHOD: 601/2

DATE RECEIVED: 08/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 09/03/91

LABORATORY CHECK SAMPLE

COMPOUND	LCS %REC	QC LIMITS %RECOVERY
1,1-Dichloroethene	137	50-151
Trichloroethene	116	82-129
Chlorobenzene	104	75-120
Toluene	108	80-108
Benzene	113	77-122
Dichlorobromomethane	84	84-132



WADSWORTH/ALERT
LABORATORIES, INC.

LAB #: 1H2905-LCS
MATRIX: WATER
METHOD: 601 Mod.

DATE RECEIVED: 08/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 09/10/91

LABORATORY CHECK SAMPLE

COMPOUND	LCS %REC	QC LIMITS %RECOVERY
Ethylene Dibromide	108	81-135



WADSWORTH/ALERT
LABORATORIES, INC.

LAB #: 1H2905-LCS
MATRIX: WATER
METHOD: 625

DATE RECEIVED: 08/29/91
DATE EXTRACTED: 08/30/91
DATE ANALYZED: 09/06/91

LABORATORY CHECK SAMPLE RECOVERY

COMPOUND	LCS %REC	QC LIMITS RECOVERY
Acenaphthene	70	31-105
Pyrene	105	12-108



WADSWORTH/ALERT
LABORATORIES, INC.

LAB #: 1H2905-LCS
MATRIX: WATER

DATE RECEIVED: 08/29/91
DATE PREP'D: 09/04/91
DATE ANALYZED: 09/04/91

LABORATORY CHECK SAMPLE RECOVERY

COMPOUND	LCS %REC	QC LIMITS RECOVERY
Lead, furnace	124	64-131



WADSWORTH/ALERT
LABORATORIES, INC.

LAB #: 1H2905-LCS
MATRIX: WATER

DATE RECEIVED: 08/29/91
DATE EXTRACTED: 09/09/91
DATE ANALYZED: 09/09/91

LABORATORY CHECK SAMPLE

COMPOUND	LCS %REC	QC LIMITS RECOVERY
Tot Rec. Pet. Hydrocarbons	93	75-125



WADSWORTH/ALERT
LABORATORIES, INC.

LAB#: 1H2905-9
MATRIX: WATER
METHOD: 601/2

DATE RECEIVED: 08/29/91
DATE ANALYZED: 09/03/91

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	MS %REC	MSD %REC	RPD	QC RPD	LIMITS RECOVERY
1,1-Dichloroethene	137	133	3	28	43-131
Trichloroethene	104	106	2	13	75-123
Chlorobenzene	106	103	3	24	58-133
Toluene	107	107	0	16	70-117
Benzene	111	113	2	15	70-117
Dichlorobromomethane	84	83	1	22	61-133



WADSWORTH/ALERT
LABORATORIES, INC.

LAB ID: 1H2905-8
MATRIX: WATER
METHOD: 601 Mod.

DATE RECEIVED: 08/29/91
DATE EXTRACTED: NA
DATE ANALYZED: 09/10/91

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	MS	MSD	RPD	QC LIMITS	
	%REC	%REC		RPD	RECOVERY
Ethylene Dibromide	91	90	1	25	81-135



WADSWORTH/ALERT
LABORATORIES, INC.

LAB#: 1H2905-10
MATRIX: WATER
METHOD: 625

DATE RECEIVED: 08/29/91
DATE EXTRACTED: 08/30/91
DATE ANALYZED: 09/10/91 to
09/11/91

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	MS	MSD	RPD	QC LIMITS	
	%REC	%REC		RPD	RECOVERY
Acenaphthene	46	53	14	24	57-104
Pyrene	54	67	21	30	58-148



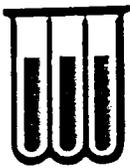
WADSWORTH/ALERT
LABORATORIES, INC.

LAB#: 1H2905-14
MATRIX: WATER

DATE RECEIVED: 08/29/91
DATE PREP'D : 09/04/91
DATE ANALYZED: 09/04/91

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY
INORGANIC PARAMETERS - METALS

ELEMENT	MS %REC	MSD %REC	RPD	QC LIMITS	
				RPD	RECOVERY
Lead, furnace	108	109	1	24	76-124



WADSWORTH/ALERT
LABORATORIES, INC.

LAB # : 1H2905-3
MATRIX: WATER

DATE RECEIVED: 08/29/91
DATE EXTRACTED: 09/09/91
DATE ANALYZED : 09/09/91

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	MS %REC	MSD %REC	RPD	QC LIMITS RPD RECOVERY
Total Recoverable Petroleum Hydrocarbons	105	99	6	24 50-140

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

Client: ABB Env. Services Project: Guffport, MS

Samples received on 8/29/91 By: Carol

LAB Lot#: 2832/ 1H 2905-1x18 Carol McMurty
(Signature)

What type of shipping container were samples received in? WAL Cooler
 Client Cooler WAL Shipper Box Other

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

- | | YES | NO |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|
| 1. Were custody papers included with samples? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Were custody papers properly filled out (ink, signed, match labels)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Were samples in direct contact with wet ice? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Did all bottles arrive in good condition (unbroken)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Were all bottle labels complete (Sample No., date, signed, analysis preservatives)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Were correct bottles used for the tests indicated? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Were proper sample preservation techniques indicated? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Were samples received within adequate holding time? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found indicate in comment section) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Were samples accepted into the laboratory? (If no see action section) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Comments: Temp's of cooler #48-76-112 #61-112 #70-90 #56-150 #81 no temp bottle
#82-112

Note on COC - Pb samples to be filtered & preserved. We sent bottles with H2O3 -
 MW-13. Rec'd TRPH bottle broken - can use 1lt from PAH bottles
(bottles rinsed in field & did filter for lab)

Action:
 Samples held due to discrepancies and project manager notified _____
 Date discrepancy resolved and samples accepted _____

1H 2105-1102

WADSWORTH/ALERT LABORATORIES – FLORIDA

5910-H BRECKENRIDGE PARKWAY/TAMPA, FL 33610
(813) 621-0784

No 3948

Chain-of Custody Record **ABB-ES**

PROJ. NO.		PROJECT NAME/LOCATION				NO. OF CONTAINERS	PARAMETER										REMARKS					
7521-30		Gulfport, Ms					NO ml	NO ml	NO ml	NO ml	NO ml	NO ml	NO ml	NO ml	NO ml	NO ml		NO ml				
SAMPLERS: (Signature)		Creed King					10 ml	10 ml	10 ml	10 ml	10 ml	10 ml	10 ml	10 ml	10 ml	10 ml		10 ml				
STA. NO.	DATE	TIME	COMP.	GRAB.	STATION LOCATION	EDB	LEAD	PAH	TRIPH	PLATE	Pb	Li	matrix spike									
Trip Blank	8/21/91	5:00		X	Trip Blank	2	2															
Equip Bk	8/28/91	1130		X	Equip. Bk	2	2	2	1	1												
MW-12	8/28	1200		X	/	2	2	2	1	1												
MW-11	8/28	1225		X		2	2	2	1	1												
MW-5	8/28	1330		X		2	2	2	1	1												
MW-10	8/28	1340		X		2	2	2	1	1												
MW-8	8/28	1405		X		2	2	2	1	1												
MW-14	8/28	1435		X		2	2	2	1	1												
MW-15	8/28	1445		X		2	2	2	1	1												
DW-1	8/28	1500		X		2	2	2	1	1												
MW-16	8/28	1530		X		GPT-T340-DW1	2	2	2	1	1											
MW-17	8/28	1540		X			2	2	2	1	1											
MW-13	8/28	1650		X			2	2	2	1	1											
MW-7	8/28	1700		X			8/10	2	2	2	1	1	2									
MW-9	8/28	1730		X			2	2	2	1	1											

Relinquished by: (Signature) <i>Carol McNulty</i>	Date / Time 8/28/91 1015	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature) <i>Tom White</i>	Date / Time 8/28/91 1800	Received by: (Signature) <i>Carol McNulty</i>	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks * All Pb samples need to be filtered and preserved. * Replace sta. I.D. MW-# with GPT-T340-# For all samples (Ex MW-6 → GPT-T340-6) also see DW-1, on all lab reports	

Distribution Original Accompanies Shipment. Copy returned with Report.

* All times CST