

REPORT ON

---

---

**LIMITED PHASE II ENVIRONMENTAL  
SITE ASSESSMENT**

**2005 Greenwood Road  
Shreveport, Louisiana**

**October 2012**

---

---

*Prepared for:*

**Biomedical Research Foundation  
of Northwest Louisiana  
1505 Kings Highway  
Shreveport, Louisiana 71103**

*Prepared by:*



**P. O. Box 17867  
Shreveport, Louisiana 71138-0867  
(318) 687-3771**

# **LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT**

**2005 Greenwood Road  
Shreveport, Louisiana**


**October 2012**

*For*


**Biomedical Research Foundation  
of Northwest Louisiana  
1505 Kings Highway  
Shreveport, Louisiana 71103**

**By**

**ALTEC Environmental Consulting, LLC**  
Written/Submitted by

  
\_\_\_\_\_  
Christopher Johnson  
Environmental Geologist

**ALTEC Environmental Consulting, LLC**  
Reviewed/Approved by

  
\_\_\_\_\_  
Robert B. Raines, Jr., PG, CHMM  
Vice President

## TABLE OF CONTENTS

<b>1.0</b>	<b>SUMMARY .....</b>	<b>1</b>
<b>2.0</b>	<b>SITE INFORMATION AND BACKGROUND.....</b>	<b>2</b>
<b>3.0</b>	<b>INVESTIGATION METHODOLOGY.....</b>	<b>2</b>
<b>4.0</b>	<b>INVESTIGATION RESULTS.....</b>	<b>3</b>
	4.1 Soil Description.....	3
	4.2 Soil Analytical Results .....	4
	4.3 Groundwater Analytical Results .....	4
<b>5.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>4</b>
<b>6.0</b>	<b>LIMITATIONS .....</b>	<b>5</b>

## LIST OF ATTACHMENTS

### **A. Figures**

Figure 1 - Site Location Map  
Figure 2 - Site Map  
Figure 3 – Soil COC Concentrations

### **B. Boring Logs**

### **C. Tables**

Table 1 - Soil Analytical Summary  
Table 2 - Groundwater Analytical Summary

### **D. Laboratory Report and Chain-of-Custody Documentation**

## 1.0 SUMMARY

ALTEC Environmental Consulting, LLC (ALTEC) was retained by the Biomedical Research Foundation of Northwest Louisiana (the Foundation) to conduct a Limited Phase II Environmental Site Assessment (ESA) for the property located at 2005 Greenwood Road (the Property) in Shreveport, Louisiana. The findings of a Phase I Environmental Site Assessment (ESA) conducted by ALTEC in August and September 2012 indicated a *Historical Recognized Environmental Condition (REC)* in connection with the Property; specifically, the former presence of a gasoline station at the intersection of Greenwood Road and Mansfield Road. The Limited Phase II ESA reported herein was performed to investigate the subsurface for the potential impacts to soil and/or groundwater that may have resulted from the former use of the Property as a gasoline service station.

On September 26, 2012, ALTEC directed and supervised the installation of four soil borings/temporary monitoring wells at the Property. A track-mounted GeoProbe<sup>®</sup> unit was used to collect soil samples for visual description, organic vapor field screening, and sample collection. The Limited Phase II ESA work scope included the collection of one soil and one groundwater sample from each soil boring/temporary monitoring well; however, insufficient well yield in temporary wells B-2W and B-4W prevented the collection of groundwater samples from these two wells.

The soil and groundwater samples were submitted to Gulf States Environmental Laboratories, Inc. (GSEL) for analysis of constituents of concern (COC) associated with gasoline and diesel releases. Laboratory analysis of revealed that COC concentrations in groundwater did not exceed the Louisiana Department of Environmental Quality (LDEQ) Risk Evaluation/Corrective Action Program (RECAP) Screening Standards (SS). Laboratory analysis of the soil samples indicated that the following COC were present in soil at concentrations above RECAP SS:

- Benzene,
- Aromatics >C8-C10,
- Naphthalene, and
- 2-Methylnaphthalene.

Based on the results of this Limited Phase II ESA, ALTEC concludes that surface soil (<15 feet bgs) at the Property has been impacted by petroleum hydrocarbons in excess of RECAP SS. On October 18, 2012, and as authorized by the Foundation, ALTEC reported the soil concentrations to the LDEQ as a release. The incident is expected to be assigned to the LDEQ Underground Storage Tank and Remediation Division (USTRD), who will then assign an Agency Interest (AI) number and require that a RECAP-compliant site investigation be conducted. As part of the RECAP site investigation, ALTEC also recommends that a ground penetrating radar (GPR) survey should be performed to determine if evidence exists that underground storage tanks (USTs) associated with the former gasoline station may remain in the shallow subsurface at the Property.

ALTEC understands that the Foundation plans to enter the subject site into the LDEQ Voluntary Remediation Program (VRP).

## 2.0 SITE INFORMATION AND BACKGROUND

ALTEC conducted a Phase I Environmental Site Assessment (ESA) of the Property in August and September 2012. The findings of the Phase I ESA indicated one *REC* associated with the Property; specifically, the historic presence of a gasoline station on the Property. The following site information is summarized from ALTEC's September 2012 Phase I ESA Report.

The Property encompasses an area of approximately 3.9 acres, and is located in Section 2, Township 17 North, Range 14 West, Caddo Parish, Louisiana. The approximate center of the Property is located at Latitude 32° 29' 06.37" N and Longitude 93° 46' 15.90" W. A Site Map of the Property is located in **Figure 1 - Appendix A** of this report.

The Property consists of an irregular-shaped parcel comprised of two separate tracts. The northernmost tract (designated in this report as Tract A) comprises approximately 3.0 acres, and was formerly developed as commercial property. The Limited Phase II ESA reported herein was conducted in the northeastern portion of Tract A, in proximity to the intersection of Greenwood Road and Mansfield Road. The southernmost tract (designated in this report as Tract B) comprises approximately 0.9 acres, and consists of a portion of a former railroad right-of-way. The Limited Phase II ESA did not include investigation of Tract B, as no *RECs* were documented on this tract.

A review of city directories indicated that previous occupants of Tract A included Mischer Wholesale Air Conditioning (1975-1980), Federal Building Annex (1965-1975), Winterton Food Stores Inc. (1960-1965), and International Harvester Co. (1943-1960). ALTEC also reviewed historical Sanborn Maps of the Property area dated 1935, 1961, and 1964. The 1935 Sanborn Map depicted a service station on the Property in proximity to the intersection of Mansfield Road and Greenwood Road. The presence of a former gasoline station is considered to be a *Historical REC*, which was the basis for conducting the Limited Phase II ESA reported herein.

At the time of this Limited Phase II ESA, the Property consisted of undeveloped commercial land. The Property has not been redeveloped since the former commercial buildings on Tract A on the Property were demolished in approximately 1980.

## 3.0 INVESTIGATION METHODOLOGY

On September 26, 2012, a track-mounted GeoProbe® unit was utilized to advance four soil borings/temporary monitoring wells at the Property for the collection of soil and groundwater samples. All drilling services were performed by Precision Probe and Drilling, Inc., a licensed Monitor Well Driller in the State of Louisiana. ALTEC's geologist, Christopher Johnson, supervised and directed the drilling subcontractor.

Soil borings B-1 and B-2 were installed in the vicinity of locations where gasoline tanks were identified on the 1935 Sanborn Map. Soil borings B-3 and B-4 were installed at locations approximately 30 - 40 feet to the east and south of borings B-1 and B-2, in an attempt to delineate any potential impacts at the suspected petroleum hydrocarbon source areas. The sampling locations are depicted in **Figure 2 - Appendix A**.

Each soil boring was advanced to a depth of approximately 20 feet bgs. Soil samples were collected continuously during the advancement of the soil borings to allow ALTEC's geologist to describe soil type, color, moisture content, consistency, odor, and obvious signs of staining (if any). The soil

samples were field screened with a photoionization detector (PID) to measure volatile organic compounds. The depth interval with the highest PID reading in each boring was selected for subsequent laboratory analysis. Soil descriptions and PID results are included on the Boring Logs, located in **Attachment B** of this report.

Following the collection of soil samples, each soil boring was converted to a temporary monitoring well by installing a one-inch diameter, ten-foot long, 0.010-inch, mill-slotted, polyvinyl chloride (PVC) well screen with sufficient riser for sampling. Following well development, groundwater samples were collected from temporary wells B-1W and B-3W. Insufficient water accumulation in temporary wells B-2W and B-4W prevented the collection of groundwater samples from these two wells.

The soil and groundwater samples were placed in appropriate laboratory-supplied containers, labeled, placed in a cooler with ice, and transported with chain-of-custody documentation to GSEL, an environmental laboratory certified by the Louisiana Environmental Laboratory Accreditation Program (LELAP), for analysis. Samples were analyzed for the following COC associated with gasoline and diesel releases, pursuant to Table D-1 of the 2003 RECAP document:

- Benzene, Ethylbenzene, Toluene, and Xylenes (BTEX) by SW-846 Method 8021B;
- Volatile Petroleum Hydrocarbon (VPH) fractions by MADEP Method;
- Extractable Petroleum Hydrocarbons (EPH) fractions by MADEP Method;
- Polynuclear Aromatic Hydrocarbons (PAH) by SW-846 Method 8270D; and
- Lead by SW-846 Method 6010C.

All down-hole equipment and tooling was decontaminated before use, between sampling intervals, and between sample locations to avoid cross-contamination. Each soil boring/temporary monitoring well was properly plugged and abandoned by the driller at the completion of sampling activities. An ALTEC Environmental Geologist was on-site during all activities.

## **4.0 INVESTIGATION RESULTS**

### **4.1 Soil Description**

The soil types encountered in the borings are described in detail in the Boring Logs (**Attachment B**), and generally described as follows:

- Brown CLAY from surface to approximately 3 - 7 feet bgs,
- Brown to gray, clayey, fine to very fine grained SAND, interbedded with clay lenses from approximately 3 - 7 feet bgs to 19.0 – 19.5 feet bgs,
- Black lignitic CLAY and SAND from approximately 19.0 – 19.5 feet bgs to the termination depth of the borings at approximately 20 feet bgs,.

Groundwater was encountered at a range of approximately 12 to 15.5 feet bgs in the soil borings.

## 4.2 Soil Analytical Results

The soil analytical results were compared to the RECAP Limiting Screening Standard (LSS), which is the lower of the RECAP Screening Standards for Soil Protective of Human Health, Industrial/Commercial Land Use (Soil<sub>SSI</sub>) and Soil Protective of Groundwater (Soil<sub>SSGW</sub>) for each COC. Results of laboratory analyses indicate that COC concentrations in soil samples from borings B-1 through B-4 were either below method detection levels or below the LSS, with the following exceptions:

- Benzene concentrations in soil samples from all four borings exceeded the Soil<sub>SSGW</sub> of 0.051 milligrams per kilogram (mg/kg). The B-2 (11'-13') sample exhibited the highest benzene concentration of 1.6 mg/kg.
- The VPH aromatics (>C<sub>8</sub>-C<sub>10</sub>) concentration of 130 mg/kg in the B-2 (11'-13') sample exceeded the Soil<sub>SSGW</sub> of 65 mg/kg.
- The naphthalene concentration of 2.66 mg/kg in the B-2 (11'-13') sample exceeded the Soil<sub>SSGW</sub> of 1.7 mg/kg.
- The 2-methylnaphthalene concentration of 4.42 mg/kg in the B-2 (11'-13') sample exceeded the Soil<sub>SSGW</sub> of 1.5 mg/kg.

The soil analytical results are summarized in **Table 1 – Attachment C**. The complete analytical report is included as **Attachment D**.

## 4.3 Groundwater Analytical Results

The groundwater analytical results were compared to the RECAP Groundwater Screening Standards (GW<sub>SS</sub>). Results of laboratory analyses indicate that COC concentrations in groundwater samples from temporary wells B-1W through B-4W were either below method detection levels or below GW<sub>SS</sub>.

The groundwater analytical results are summarized in **Table 2 – Attachment C**. The complete analytical report is included as **Attachment D**.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this Limited Phase II ESA, ALTEC concludes that surface soil (<15 feet bgs) at the Property has been impacted by petroleum hydrocarbons in excess of RECAP SS. On October 18, 2012, and as authorized by the Foundation, ALTEC reported the soil concentrations to the LDEQ as a release. The incident is expected to be assigned to the LDEQ Underground Storage Tank and Remediation Division (USTRD), who will assign an Agency Interest (AI) number and require that a RECAP-compliant site investigation be conducted. As part of the RECAP site investigation, ALTEC recommends that a ground penetrating radar (GPR) survey should be performed to determine if evidence exists that underground storage tanks (USTs) associated with the former gasoline station may remain in the shallow subsurface at the Property.

ALTEC understands that the Foundation plans to enter the subject site into the LDEQ Voluntary Remediation Program (VRP).

## **6.0 LIMITATIONS**

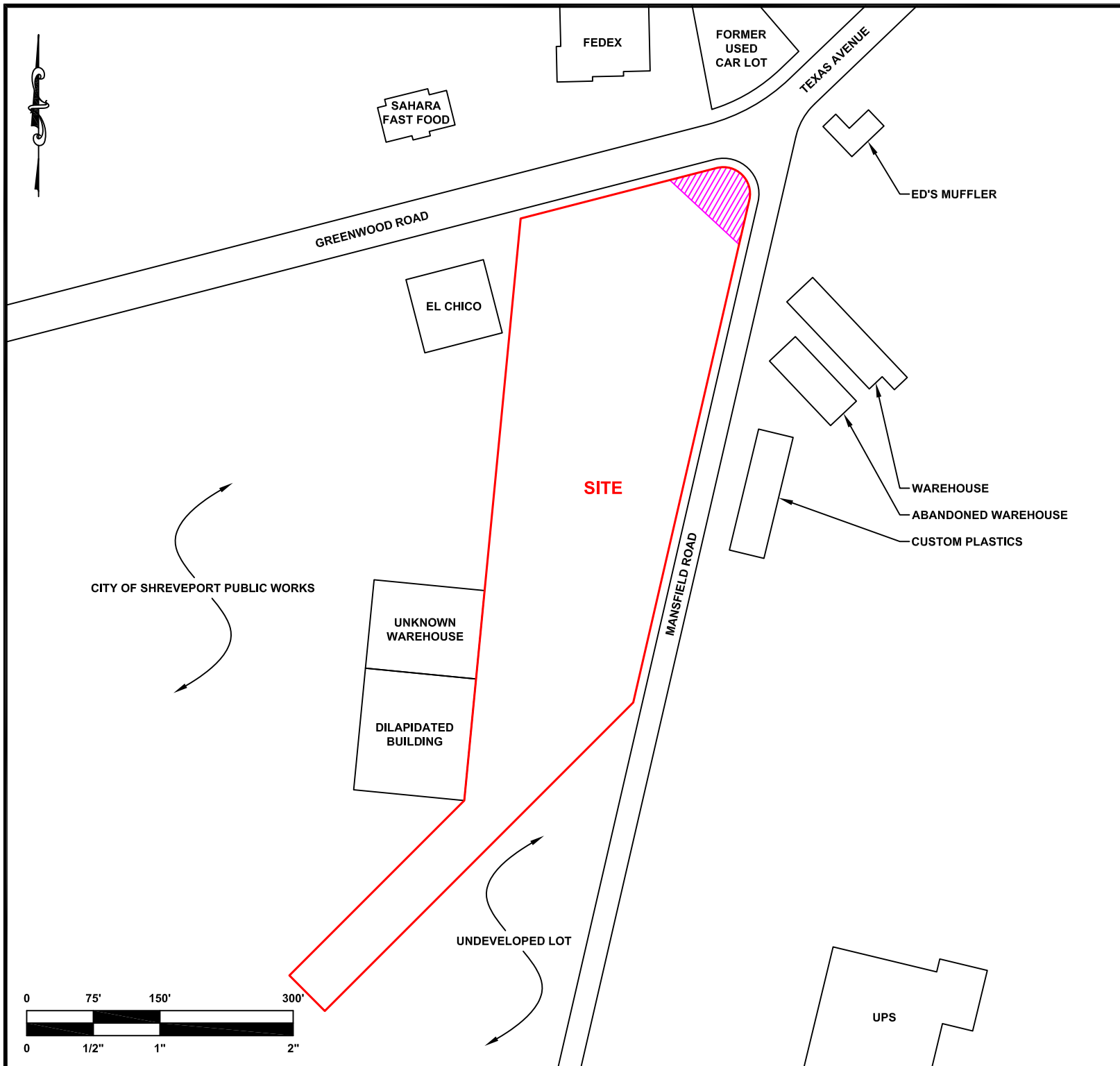
This report provides a summary of the data collected and observations made by ALTEC during this investigation. ALTEC performed subsurface sampling to evaluate impacts from a selected source area at this single point in time. Actual impacts to the subsurface can vary between sample points and source areas. This report is based upon the information developed by ALTEC as a result of this one-time sampling and does not guarantee that the site is free of potentially hazardous materials or conditions, or that latent/undiscovered conditions will not become evident in the future.

The users of this report must recognize that no environmental investigation can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this Limited Phase II ESA is intended to reduce, not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the Property.



## **ATTACHMENT A**

### **FIGURES**



**TITLE**

**FIGURE 1  
SITE MAP**

**LOCATION**

**BIOMEDICAL RESEARCH FOUNDATION  
OF NORTHWEST LOUISIANA  
2005 GREENWOOD ROAD  
SHREVEPORT, LOUISIANA**

**LEGEND**

- **PROPERTY BOUNDARY**
- AREA OF INVESTIGATION**



PROJECT NO.	SCALE
18918	1" = 150'
PAGE	DRAWN BY
1	LNJ
SHEET	DATE
A - 8.5 X 11	10/17/12

F:\Drawings\lzz 2012\19182 Biomedical Research Foundation\19182 Figure 1 - Site Map.dwg

**TITLE**

**FIGURE 2  
SAMPLE LOCATION MAP**

**LOCATION**

**BIOMEDICAL RESEARCH FOUNDATION  
OF NORTHWEST LOUISIANA  
2005 GREENWOOD ROAD  
SHREVEPORT, LOUISIANA**

**LEGEND**

**B1**  
● **SOIL BORING/TEMPORARY WELL**

**PROJECT NO.****SCALE****19182****1" = 20'****PAGE****DRAWN BY****1****LNJ****SHEET****DATE****A - 8.5 X 11****09/18/12**

F:\Drawings\lzz 2012\19182 Biomedical Research Foundation\19182 Figure 2 -  
Sample Location Map.dwg



## TITLE

FIGURE 3  
SOIL COC CONCENTRATIONS  
(mg/kg)

## LOCATION

BIOMEDICAL RESEARCH FOUNDATION  
OF NORTHWEST LOUISIANA  
2005 GREENWOOD ROAD  
SHREVEPORT, LOUISIANA

## LEGEND

**B1** SOIL BORING/  
TEMPORARY WELL

<i>0.18</i>	BENZENE
<i>13</i>	ALIPHATICS > C8 - C10
<0.33	2-METHYLNAPHTHALENE
<0.33	NAPHTHALENE

NOTE: BOLD AND ITALICIZED FONT  
INDICATES EXCEEDANCE OF  
RECAP SCREENING STANDARD.



PROJECT NO.

SCALE

19182

1" = 20'

PAGE

DRAWN BY

1

LNJ

SHEET

DATE




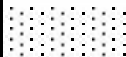
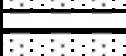
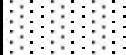


A - 8.5 X 11

10/17/12

F:\Drawings\lzz 2012\19182 Biomedical Research Foundation\19182 Figure 3 -  
Soil COC Concentrations.dwg

**ATTACHMENT B**


**BORING LOGS**











Project Name/Project # BRF Greenwood - 19135		Boring # / MW# <b>B-1</b>		Date Drilled 9/26/2012		
Site Address 2005 Greenwood Road, Shreveport, LA						
Drilling Method Direct Push		Surface Elevation Not Measured		Top of Casing Elev Not Measured		
Geologist Chris Johnson		Driller Precision Probe		Drilling Supervisor Brian Swann		
Latitude 32° 29' 09.8"		Longitude 93° 46' 14.3"		SEC/TWNP/RGE 2 / T17N / R14W		
Remark: Not to Scale.						
Borehole Diameter 2.5"				Total Depth of Boring 20'		
Depth (ft)	Sample Method	PID (PPM)	Sample - Time	Graphic log	USCS Class.	Description of Strata
1	DPT	3.2			CL	0'-1.0' - Brick red CLAY, firm, low plasticity
2						
3						
4						
5	DPT	5.1			CL	1.0'-7.0' - Light gray - mottled orange (Fe-stained) CLAY, firm-stiff, low plasticity
6						
7						
8						
9	DPT	37	9:30 - 8'-10'			
10						
11	DPT	1129			SC - CL	7.0'-20.0' - Brown clayey SAND, fine to very fine grained, interbedded clay, saturated at 12' bgs
12						
13						
14						
15	DPT	310			SC - CL	
16						
17						
18						
19	DPT	11.1				
20						
20						Black staining, appears to be lignite


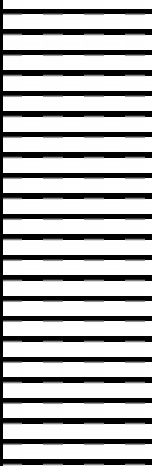
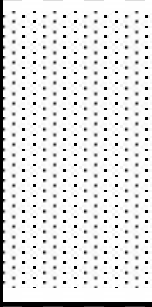
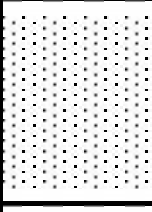
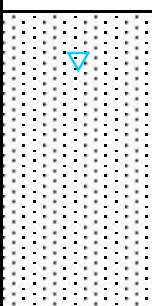
 SAND
  CLAY
  SILT
  GRAVEL

DPT - Direct Push Technology


PID - Photo Ionization Detector

 Depth at which first water encountered.

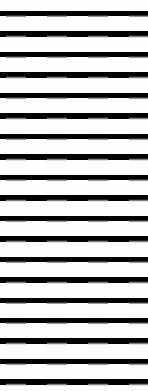
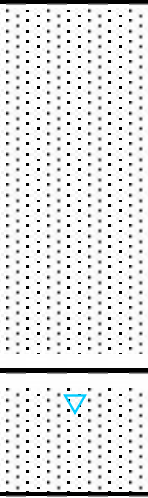
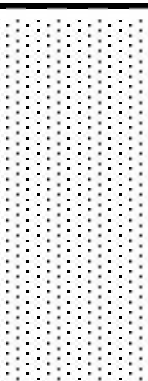
Project Name/Project # BRF Greenwood - 19135			Boring # / MW# <b>B-2</b>		Date Drilled 9/26/2012		
Site Address 2005 Greenwood Road, Shreveport, LA							
Drilling Method Direct Push		Surface Elevation Not Measured		Top of Casing Elev Not Measured			
Geologist Chris Johnson		Driller Precison Probe		Drilling Supervisor Brian Swann			
Latitude 32° 29' 09.6"		Longitude 93° 46' 14.0"		SEC/TWNP/RGE 2 / T17N / R14W			
Remark: Not to Scale.							
Borehole Diameter 2.5"			Total Depth of Boring 20'				
Depth (ft)	Sample Method	PID (PPM)	Sample - Time	Graphic log	USCS Class.	Description of Strata	
1	DPT	0			CL	0'-3.0' - Brick red CLAY, firm, low plasticity	
2							
3							
4							
5							
6							
7							
8	DPT	46.7					
9		46.7					
10	DPT	1025		9:45 - 13'-15'			SC - CL
11							
12		2368					
13							
14		DPT	59				
15							
16	33.3						
17							
18	33.3						
19							

Project Name/Project # BRF Greenwood - 19135			Boring # / MW# <b>B-3</b>		Date Drilled 9/26/2012		
Site Address 2005 Greenwood Road, Shreveport, LA							
Drilling Method Direct Push		Surface Elevation Not Measured		Top of Casing Elev Not Measured			
Geologist Chris Johnson		Driller Precision Probe		Drilling Supervisor Brian Swann			
Latitude 32° 29' 09.3"		Longitude 93° 46' 13.9"		SEC/TWNP/RGE 2 / T17N / R14W			
Remark: Not to Scale.							
Borehole Diameter 2.5"				Total Depth of Boring 20'			
Depth (ft)	Sample Method	PID (PPM)	Sample - Time	Graphic log	USCS Class.	Description of Strata	
1	DPT	1.4			CL	0'-7.0' - Brown CLAY, firm, low plasticity	
2							
3							
4							
5							
6	DPT	0.6	10:15 - 8'-10'		SC - CL	7.0'-19.0' - Brown clayey SAND, fine to very fine grained, interbedded clay, saturated at 15.5' bgs	
7							
8							
9							
10							
11	DPT	10.2					
12							
13							
14							
15							
16	DPT	0					
17							
18							
19							
		0.0					



Project Name/Project # BRF Greenwood - 19135		Boring # / MW# <b>B-4</b>		Date Drilled 9/26/2012		
Site Address 2005 Greenwood Road, Shreveport, LA						
Drilling Method Direct Push		Surface Elevation Not Measured		Top of Casing Elev Not Measured		
Geologist Chris Johnson		Driller Precision Probe		Drilling Supervisor Brian Swann		
Latitude 32° 29' 09.5"		Longitude 93° 46' 14.2"		SEC/TWNP/RGE 2 / T17N / R14W		
Remark: Not to Scale.						
Borehole Diameter 2.5"				Total Depth of Boring 20'		

Depth (ft)	Sample Method	PID (PPM)	Sample - Time	Graphic log	USCS Class.	Description of Strata
1	DPT	0			CL	0'-6.0' - Brown CLAY, firm, low - medium plasticity
2						
3						
4						
5						
6	DPT	0	10:45 - 11'-13'		SC - CL	6.0'-15.0' - Brown-gray clayey SAND, fine to very fine grained, interbedded clay, saturated at 12' bgs
7						
8						
9						
10						
11	DPT	232.5			SC	15.0'-19.5' - Gray clayey SAND, fine to very fine grained
12						
13						
14						
15						
16	DPT	0				
17						
18						
19						
		0.0				

## **ATTACHMENT C**

### **TABLES**

# TABLE 1

## SOIL ANALYTICAL SUMMARY

Limited Phase II Environmental Site Assessment  
2005 Greenwood Road  
Shreveport, Louisiana

CONSTITUENT	Sample ID No.	B-1	B-2	B-3	B-4	RECAP SOIL <sub>SSI</sub>	RECAP SOIL <sub>SSGW</sub>	Limiting RECAP SS
	CAS	8'-10'	11'-13'	8'-10'	11'-13'			
<b>Volatile Organic Compounds - SW-846 Method 8021B</b>								
Benzene	71-43-2	0.27	1.6	0.22	0.18	3.1	0.051	0.051
Toluene	108-88-3	0.82	3.0	3.47	0.58	470	20	20
Ethylbenzene	100-41-4	0.18	7.7	8.68	1.69	230	19	19
Total Xylenes	1330-20-7	0.12	9.1	19.84	2.54	120	150	120
<b>Volatile Petroleum Hydrocarbons (VPH) - MADEP Method</b>								
Aliphatics >C6-C8	NA	<1.2	630	21	1.6	8,000	10,000	8,000
Aliphatics >C8-C10	NA	<2.5	300	33	4.6	880	5,300	880
Aromatics >C8-C10	NA	<2.5	130	13	<3.1	510	65	65
<b>Extractable Petroleum Hydrocarbons (EPH) - MADEP Method</b>								
Aliphatics >C10-C12	NA	6.1	130	2.8	7.0	2,000	10,000	2,000
Aliphatics >C12-C16	NA	<1.7	4.1	<1.7	<1.7	3,800	10,000	3,800
Aliphatics >C16-C35	NA	<3.3	13	<3.3	<3.3	10,000	10,000	10,000
Aromatics >C10-C12	NA	<5.0	<5.0	<5.0	<5.0	1,100	100	100
Aromatics >C12-C16	NA	<8.3	<8.3	<8.3	<8.3	2,100	200	200
Aromatics >C16-C21	NA	<6.0	<6.0	<6.0	<6.0	1,700	2,100	1,700
Aromatics >C21-C35	NA	<5.3	<5.3	<5.3	<5.3	2,500	10,000	2,500
<b>Polynuclear Aromatic Hydrocarbons (PAH) - SW-846 Method 8270</b>								
Acenaphthene	83-32-9	<0.33	<0.33	<0.33	<0.33	6,100	220	220
Acenaphthylene	208-96-8	<0.33	<0.33	<0.33	<0.33	5,100	88	88
Anthracene	120-12-7	<0.33	<0.33	<0.33	<0.33	48,000	120	120
Benzo(a)anthracene	56-55-3	<0.33	<0.33	<0.33	<0.33	2.9	330	2.9
Benzo(b)fluoranthene	205-99-2	<0.33	<0.33	<0.33	<0.33	2.9	220	2.9
Benzo(k)fluoranthene	207-08-9	<0.33	<0.33	<0.33	<0.33	29	120	29
Benzo(a)pyrene	50-32-8	<0.33	<0.33	<0.33	<0.33	0.33	23	0.33
Chrysene	218-01-9	<0.33	<0.33	<0.33	<0.33	290	76	76
Dibenz(a,h)anthracene	53-70-3	<0.33	<0.33	<0.33	<0.33	0.33	540	0.33
Fluoranthene	206-44-0	<0.33	<0.33	<0.33	<0.33	2,900	1,200	1,200
Fluorene	86-73-7	<0.33	<0.33	<0.33	<0.33	5,400	230	230
Indeno(1,2,3-cd)pyrene	193-39-5	<0.33	<0.33	<0.33	<0.33	2.9	9.2	2.9
2-Methylnaphthalene	91-57-6	<0.33	2.66	<0.33	<0.33	170	1.7	1.7
Naphthalene	91-20-3	<0.33	4.42	<0.33	<0.33	43	1.5	1.5
Phenanthrene	85-01-8	<0.33	<0.33	<0.33	<0.33	43,000	660	660
Pyrene	129-00-0	<0.33	<0.33	<0.33	<0.33	56,000	1,100	1,100
<b>Metals - SW-846 Method 6010</b>								
Lead	7439-92-1	5.55	20.72	5.78	5.78	1,400	100	100

### Notes:

All values in milligrams per kilogram (mg/kg)

SOIL<sub>SSI</sub> = RECAP Industrial Screening Standard

SOIL<sub>SSGW</sub> = RECAP Soils Protective of Groundwater Screening Standard

**Bold Italicized Red Font** = sample result above Limiting RECAP Screening Standard

**TABLE 2**  
**GROUNDWATER ANALYTICAL SUMMARY**

Limited Phase II Environmental Site Assessment  
2005 Greenwood Road  
Shreveport, Louisiana

CONSTITUENT	Sample ID No.	B-1W	B-2W	B-3W	B-4W	RECAP GW <sub>SS</sub>
	CAS					
Volatile Organic Compounds - SW-846 Method 8021B						
Benzene	71-43-2	0.0012	NS	0.0011	NS	0.005
Toluene	108-88-3	0.0054	NS	0.0021	NS	1.0
Ethylbenzene	100-41-4	0.0091	NS	<0.001	NS	0.70
Total Xylenes	1330-20-7	0.0096	NS	0.004.2	NS	10
Volatile Petroleum Hydrocarbons (VPH) - MADEP Method						
Aliphatics >C6-C8	NA	0.069	NS	<0.03	NS	3.2
Aliphatics >C8-C10	NA	<0.06	NS	<0.06	NS	0.15
Aromatics >C8-C10	NA	<0.06	NS	<0.06	NS	0.15
Extractable Petroleum Hydrocarbons (EPH) - MADEP Method						
Aliphatics >C10-C12	NA	<0.15	NS	<0.15	NS	0.15
Aliphatics >C12-C16	NA	<0.15	NS	<0.15	NS	0.15
Aliphatics >C16-C35	NA	<0.15	NS	0.26	NS	7.3
Aromatics >C10-C12	NA	<0.15	NS	<0.15	NS	0.15
Aromatics >C12-C16	NA	<0.15	NS	<0.15	NS	0.15
Aromatics >C16-C21	NA	<0.15	NS	<0.15	NS	0.15
Aromatics >C21-C35	NA	<0.15	NS	<0.15	NS	0.15
Polynuclear Aromatic Hydrocarbons (PAH) - SW-846 Method 8270						
Acenaphthene	83-32-9	<0.01	NS	<0.01	NS	0.037
Acenaphthylene	208-96-8	<0.01	NS	<0.01	NS	0.1
Anthracene	120-12-7	<0.01	NS	<0.01	NS	0.043
Benzo(a)anthracene	56-55-3	<0.01	NS	<0.01	NS	0.0078
Benzo(b)fluoranthene	205-99-2	<0.01	NS	<0.01	NS	0.0048
Benzo(k)fluoranthene	207-08-9	<0.01	NS	<0.01	NS	0.0025
Benzo(a)pyrene	50-32-8	<0.01	NS	<0.01	NS	0.0002
Chrysene	218-01-9	<0.01	NS	<0.01	NS	0.0016
Dibenz(a,h)anthracene	53-70-3	<0.01	NS	<0.01	NS	0.0025
Fluoranthene	206-44-0	<0.01	NS	<0.01	NS	0.15
Fluorene	86-73-7	<0.01	NS	<0.01	NS	0.024
Indeno(1,2,3-cd)pyrene	193-39-5	<0.01	NS	<0.01	NS	0.0037
2-Methylnaphthalene	91-57-6	<0.01	NS	<0.01	NS	0.00062
Naphthalene	91-20-3	<0.01	NS	<0.01	NS	0.01
Phenanthrene	85-01-8	<0.01	NS	<0.01	NS	0.18
Pyrene	129-00-0	<0.01	NS	<0.01	NS	0.018
Metals - SW-846 Method 6010						
Lead - Total	7439-92-1	0.043	NS	<0.004	NS	0.015
Lead - Dissolved	7439-92-1	0.011	NS	<0.004	NS	0.015

**Notes:**

All values in milligrams per liter (mg/)

GW<sub>SS</sub> = RECAP Screening Standard

**Bold Italicized Red Font** = sample result above Limiting RECAP Screening Standard

NS=Insufficient well yield to obtain sample

**ATTACHMENT D**

**LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION**

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296  
LELAP CERTIFICATION # 02082

## ANALYTICAL REPORT CASE NARRATIVE

GSEL ID# 77055

### Client:

ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

The results herein relate only to the items tested. This report shall not be reproduced except in full, without the written approval of the laboratory. Test reports meet all requirements of LAC33:1 and NELAP. Results are reported on a wet weight basis unless otherwise indicated as dry weight.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples are chosen at random from each analytical batch and tested to check for possible matrix effects. The samples chosen for spike purposes may or may not have been a sample submitted in this sample group. Laboratory Control Samples (LCS) and a Method Blank (MB) are analyzed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process. The analytical procedures for which this data is reported are validated by the determination of the LCS and the MB.

Some requested parameters were subcontracted to Accutest LELAP # 02048. Included you will find the entire data package submitted to GSEL by Accutest.

Any other exceptions associated with this report will be noted in the Case Narrative.

If you have questions regarding this analytical report, please contact the laboratory manager. Please reference the above GSEL ID Number.

TOTAL NUMBER OF PAGES IN THE REPORT: 50 PAGES

Report Approved By: Charlene S Killgore Date: 10/16/12

Charlene S. Killgore, Laboratory Manager  
R. Scott Martin, President

Michelle Rushing, QC Manager  
Dale Hall, Vice President

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296  
LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 1 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B1 8'-10'  
**Project Name:** BRG GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 0930 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-1

### VOLATILE ORGANICS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
Benzene			0.27		0.10	100	SW 8021B	1847 - 09/27/12	JDB
Toluene			0.82		0.10	100	SW 8021B	1847 - 09/27/12	JDB
Ethyl Benzene			0.18		0.10	100	SW 8021B	1847 - 09/27/12	JDB
M-P-Xylene			<0.20		0.20	100	SW 8021B	1847 - 09/27/12	JDB
O-Xylene			0.12		0.10	100	SW 8021B	1847 - 09/27/12	JDB
<b>Prep Method:</b> SW 5035			<b>Prep Date:</b> 09/26/12			<b>Analyst:</b> CLIENT			

### METALS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Det. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TOTAL LEAD			5.55		0.003	1	SW 6010C	1456 - 10/02/12	JCH
<b>Prep Method:</b> SW 3050B			<b>Prep Date:</b> 10/02/12			<b>Analyst:</b> JCH			

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 · 800-256-6110 · 318-220-9067 · Fax 318-221-3296  
LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 2 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B1 8'-10'  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 0930 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-1

### POLYNUCLEAR AROMATIC HYDROCARBONS

Sample Matrix:		SOIL							
Analyte	Results	Units	Qualifier	Reporting Limit	Dil. Factor	Method	Time/Date Analyzed		Analyst
Naphthalene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Acenaphthylene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Acenaphthene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Fluorene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Phenanthrene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Anthracene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Pyrene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Benzo (a) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Chrysene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Benzo (b) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Benzo (k) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Benzo (a) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Indeno (1,2,3-cd) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Dibenzo (a,h) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
2, Methyl naphthalene	<0.33	mg/kg		0.33	1	SW 8270D	0751	- 10/04/12	JDB
Prep Method:		SW 3550C		Prep Date:		09/27/12	Analyst:		JDB

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range



# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296  
LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 3 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B2 11'-13'  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 0945 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#: 77055-2**

### VOLATILE ORGANICS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
Benzene			1.6		1.0	1000	SW 8021B	1929 - 09/27/12	JDB
Toluene			3.0		1.0	1000	SW 8021B	1929 - 09/27/12	JDB
Ethyl Benzene			7.7		1.0	1000	SW 8021B	1929 - 09/27/12	JDB
M-P-Xylene			5.4		2.0	1000	SW 8021B	1929 - 09/27/12	JDB
O-Xylene			3.7		1.0	1000	SW 8021B	1929 - 09/27/12	JDB
<b>Prep Method:</b> SW 5035				<b>Prep Date:</b> 09/26/12			<b>Analyst:</b> CLIENT		

### METALS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Det. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TOTAL LEAD			20.74		0.003	1	SW 6010C	1458 - 10/02/12	JCH
<b>Prep Method:</b> SW 3050B				<b>Prep Date:</b> 10/02/12			<b>Analyst:</b> JCH		

ND – Not detected at the reporting limit  
A – Analyte detected in the associated method blank  
B – Estimated value between the detection limit and the reporting limit  
C – Estimated value exceeds the calibration curve  
D – Surrogate recovery outside advisable QC limits

TNTC – Too numerous to count  
E – Surrogate recovery unreportable due to dilution  
F – Matrix interference  
G – Method specific criteria not met  
H – Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296

LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS

P. O. BOX 17867

SHREVEPORT, LA 71138-0867

**Report Date:** 10/16/12

**Sample ID:** 3F12270-B2 11'-13'

**Project Name:** BRF GREENWOOD

**Location:** SHREVEPORT, LA

**Collected By:** CLIENT

**Time/Date Collected:** 0945 09/26/12

**Date Received:** 09/26/12

Page 4 of 12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-2

### POLYNUCLEAR AROMATIC HYDROCARBONS

Sample Matrix:		SOIL							
Analyte	Results	Units	Qualifier	Reporting Limit	Dil. Factor	Method	Time/Date Analyzed		Analyst
Naphthalene	4.42	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Acenaphthylene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Acenaphthene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Fluorene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Phenanthrene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Anthracene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Pyrene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Benzo (a) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Chrysene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Benzo (b) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Benzo (k) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Benzo (a) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Indeno (1,2,3-cd) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Dibenzo (a,h) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
2, Methyl naphthalene	2.66	mg/kg		0.33	1	SW 8270D	0902	- 10/04/12	JDB
Prep Method:		SW 3550C		Prep Date:		09/27/12	Analyst:		JDB

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296

LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 5 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B3 8'-10'  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1015 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-3

### VOLATILE ORGANICS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
Benzene			0.22		0.10	100	SW 8021B	2010 - 09/27/12	JDB
Toluene			3.47		0.10	100	SW 8021B	2010 - 09/27/12	JDB
Ethyl Benzene			8.68		0.10	100	SW 8021B	2010 - 09/27/12	JDB
M-P-Xylene			6.14		0.20	100	SW 8021B	2010 - 09/27/12	JDB
O-Xylene			13.7		0.10	100	SW 8021B	2010 - 09/27/12	JDB
<b>Prep Method:</b> SW 5035			<b>Prep Date:</b> 09/26/12			<b>Analyst:</b> CLIENT			

### METALS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Det. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TOTAL LEAD			5.78		0.003	1	SW 6010C	1500 - 10/02/12	JCH
<b>Prep Method:</b> SW 3050B			<b>Prep Date:</b> 10/02/12			<b>Analyst:</b> JCH			

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296

LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 6 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B3 8'-10'  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1015 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#: 77055-3**

### POLYNUCLEAR AROMATIC HYDROCARBONS

Sample Matrix:		SOIL							
Analyte	Results	Units	Qualifier	Reporting Limit	Dil. Factor	Method	Time/Date Analyzed		Analyst
Naphthalene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Acenaphthylene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Acenaphthene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Fluorene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Phenanthrene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Anthracene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Pyrene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Benzo (a) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Chrysene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Benzo (b) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Benzo (k) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Benzo (a) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Indeno (1,2,3-cd) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Dibenzo (a,h) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
2, Methyl naphthalene	<0.33	mg/kg		0.33	1	SW 8270D	1155	- 10/04/12	JDB
Prep Method:		SW 3550C		Prep Date:		09/27/12		Analyst:	
								JDB	

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 · 800-256-6110 · 318-220-9067 · Fax 318-221-3296  
LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 7 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B4 11'-13'  
**Project Name:** BRG GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1045 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#: 77055-4**

### VOLATILE ORGANICS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
Benzene			0.18		0.10	100	SW 8021B	2050 - 09/27/12	JDB
Toluene			0.58		0.10	100	SW 8021B	2050 - 09/27/12	JDB
Ethyl Benzene			1.69		0.10	100	SW 8021B	2050 - 09/27/12	JDB
M-P-Xylene			1.27		0.20	100	SW 8021B	2050 - 09/27/12	JDB
O-Xylene			1.27		0.10	100	SW 8021B	2050 - 09/27/12	JDB

**Prep Method:** SW 5035

**Prep Date:** 09/26/12

**Analyst:** CLIENT

### METALS

**Sample Matrix:** SOIL

Analyte	Units:	mg/kg	Result	Qualifier	Det. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TOTAL LEAD			5.78		0.003	1	SW 6010C	1502 - 10/02/12	JCH

**Prep Method:** SW 3050B

**Prep Date:** 10/02/12

**Analyst:** JCH

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296

LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 8 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B4 11'-13'  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1045 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-4

### POLYNUCLEAR AROMATIC HYDROCARBONS

<b>Sample Matrix:</b> SOIL									
Analyte	Results	Units	Qualifier	Reporting Limit	Dil. Factor	Method	Time/Date Analyzed		Analyst
Naphthalene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Acenaphthylene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Acenaphthene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Fluorene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Phenanthrene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Anthracene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Pyrene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Benzo (a) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Chrysene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Benzo (b) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Benzo (k) fluoranthene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Benzo (a) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Indeno (1,2,3-cd) pyrene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
Dibenzo (a,h) anthracene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
2, Methyl naphthalene	<0.33	mg/kg		0.33	1	SW 8270D	1044	- 10/04/12	JDB
<b>Prep Method:</b> SW 3550C		<b>Prep Date:</b> 09/27/12		<b>Analyst:</b> JDB					

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296

LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 9 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B1 W  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1300 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-5

### VOLATILE ORGANICS

**Sample Matrix:** GROUND WATER

Analyte	Units:	ug/L	Result	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
Benzene			1.2		1.0	1	SW 8021B	1323 - 09/27/12	JDB
Toluene			5.4		1.0	1	SW 8021B	1323 - 09/27/12	JDB
Ethyl Benzene			9.1		1.0	1	SW 8021B	1323 - 09/27/12	JDB
M-P-Xylene			5.6		2.0	1	SW 8021B	1323 - 09/27/12	JDB
O-Xylene			4.0		1.0	1	SW 8021B	1323 - 09/27/12	JDB
<b>Prep Method:</b> SW 5030B				<b>Prep Date:</b> 09/27/12			<b>Analyst:</b> JDB		

### METALS

**Sample Matrix:** GROUND WATER

Analyte	Units:	mg/L	Result	Qualifier	Det. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TOTAL LEAD			0.043	B	0.004	1	EPA 200.7	1222 - 09/27/12	JCH
DISSOLVED LEAD			0.011	B	0.004	1	EPA 200.7	1223 - 09/27/12	JCH
<b>Prep Method:</b> SW 3010A				<b>Prep Date:</b> 09/26/12			<b>Analyst:</b> JCH		

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 · 800-256-6110 · 318-220-9067 · Fax 318-221-3296  
LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 10 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B1 W  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1300 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#: 77055-5**

### POLYNUCLEAR AROMATIC HYDROCARBONS

Sample Matrix:		GROUND WATER						
Analyte	Results	Units	Qualifier	Reporting Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
Naphthalene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Acenaphthylene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Acenaphthene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Fluorene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Phenanthrene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Anthracene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Fluoranthene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Pyrene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Benzo (a) anthracene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Chrysene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Benzo (b) fluoranthene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Benzo (k) fluoranthene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Benzo (a) pyrene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Indeno (1,2,3-cd) pyrene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Dibenzo (a,h) anthracene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
2, Methyl naphthalene	<0.01	mg/L		0.01	1	SW 8270D	0019 - 10/04/12	JDB
Prep Method:	SW 3510C		Prep Date:	09/27/12		Analyst:	JDB	

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range



# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 · 800-256-6110 · 318-220-9067 · Fax 318-221-3296  
LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 11 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B3 W  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1320 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-6

### VOLATILE ORGANICS

**Sample Matrix:** GROUND WATER

Analyte	Units:	ug/L	Result	Qualifier	Rep. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
Benzene			1.1		1.0	1	SW 8021B	1404 - 09/27/12	JDB
Toluene			2.1		1.0	1	SW 8021B	1404 - 09/27/12	JDB
Ethyl Benzene			<1.0		1.0	1	SW 8021B	1404 - 09/27/12	JDB
M-P-Xylene			3.1		2.0	1	SW 8021B	1404 - 09/27/12	JDB
O-Xylene			1.1		1.0	1	SW 8021B	1404 - 09/27/12	JDB

**Prep Method:** SW 5030B **Prep Date:** 09/27/12 **Analyst:** JDB

### METALS

**Sample Matrix:** GROUND WATER

Analyte	Units:	mg/L	Result	Qualifier	Det. Limit	Dil. Factor	Method	Time/Date Analyzed	Analyst
TOTAL LEAD			<0.004		0.004	1	EPA 200.7	1225 - 09/27/12	JCH

**Prep Method:** SW 3010A **Prep Date:** 09/26/12 **Analyst:** JCH

ND - Not detected at the reporting limit  
A - Analyte detected in the associated method blank  
B - Estimated value between the detection limit and the reporting limit  
C - Estimated value exceeds the calibration curve  
D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count  
E - Surrogate recovery unreportable due to dilution  
F - Matrix interference  
G - Method specific criteria not met  
H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring St. Shreveport, La. 71101 • 800-256-6110 • 318-220-9067 • Fax 318-221-3296

LELAP CERTIFICATION # 02082

**Client:** ALTEC ENVIRONMENTAL CONSULTANTS  
P. O. BOX 17867  
SHREVEPORT, LA 71138-0867

Page 12 of 12

**Report Date:** 10/16/12  
**Sample ID:** 3F12270-B3 W  
**Project Name:** BRF GREENWOOD  
**Location:** SHREVEPORT, LA  
**Collected By:** CLIENT  
**Time/Date Collected:** 1320 09/26/12  
**Date Received:** 09/26/12

## ANALYTICAL RESULTS

**GSEL ID#:** 77055-6

### POLYNUCLEAR AROMATIC HYDROCARBONS

<b>Sample Matrix:</b>		GROUND WATER							
Analyte	Results	Units	Qualifier	Reporting Limit	Dil. Factor	Method	Time/Date Analyzed		Analyst
Naphthalene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Acenaphthylene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Acenaphthene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Fluorene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Phenanthrene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Anthracene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Fluoranthene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Pyrene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Benzo (a) anthracene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Chrysene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Benzo (b) fluoranthene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Benzo (k) fluoranthene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Benzo (a) pyrene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Indeno (1,2,3-cd) pyrene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
Dibenzo (a,h) anthracene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
2, Methyl naphthalene	<0.01	mg/L		0.01	1	SW 8270D	0130	- 10/04/12	JDB
<b>Prep Method:</b>		SW 3510C		<b>Prep Date:</b>		09/27/12	<b>Analyst:</b>		JDB

ND - Not detected at the reporting limit

A - Analyte detected in the associated method blank

B - Estimated value between the detection limit and the reporting limit

C - Estimated value exceeds the calibration curve

D - Surrogate recovery outside advisable QC limits

TNTC - Too numerous to count

E - Surrogate recovery unreportable due to dilution

F - Matrix interference

G - Method specific criteria not met

H - Some of the QC was outside the normal range

# Gulf States Environmental Laboratories

222 Spring Street; Shreveport, LA 71101 Phone: (800) 256-6110 (318) 220-9067 Fax: (318) 221-3296

## QUALITY CONTROL REPORT

**GSEL #: 77055**

Method: TOTAL METALS 200.7 Analyst: JCH Batch ID: 120926-01

Date Analyzed: 9/27/2012 Units: mg/L

### Method Blank:

Analyte	Result	Reporting Limit
LEAD	ND	0.1

### Laboratory Control Sample (LCS)

Analyte	Spike Added	Result	Percent Recovery	Acceptance Limits
LEAD	5	4.801	96.02%	80-120

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

GSEL ID Sample Spiked: 76990C

Analyte	Sample Results	Spike Added (MS/MSD)	MS Results	MS % Recovery	MSD Results	MSD % Recovery	RPD (Limit 20%)	MS/MSD Acceptance Limits
LEAD	0.000	5	4.538	90.76%	4.625	92.50%	1.90%	75-125

ND - Not detected at the Reporting Limit

RPD - Relative Percent Difference

Depending on matrix, "Sample Results" may or may not be the final calculation using the dilution factor

# Gulf States Environmental Laboratories

222 Spring Street; Shreveport, LA 71101 Phone: (800) 256-6110 (318) 220-9067 Fax: (318) 221-3296

## QUALITY CONTROL REPORT

**GSEL #: 77055**

Method: TOTAL METALS 6010C	Analyst: JCH	Batch ID: 121002-01
Date Analyzed: 10/2/2012		Units: mg/L

Method Blank:

Analyte	Result	Reporting Limit
LEAD	ND	0.1

Laboratory Control Sample (LCS)

Analyte	Spike Added	Result	Percent Recovery	Acceptance Limits
LEAD	5	4.854	97.08%	80-120

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

GSEL ID Sample Spiked: 77074P

Analyte	Sample Results	Spike Added (MS/MSD)	MS Results	MS % Recovery	MSD Results	MSD % Recovery	RPD (Limit 20%)	MS/MSD Acceptance Limits
LEAD	0.811	5	4.580	75.38%	4.769	79.16%	4.04%	75-125

ND - Not detected at the Reporting Limit

RPD - Relative Percent Difference

Depending on matrix, "Sample Results" may or may not be the final calculation using the dilution factor

**Gulf States Environmental Laboratory**  
**QA/QC Report**

GSEL No. 77055

EXHIBIT: 3

Run Date: 09/27/12

<b>BENZENE (PPB)</b>	<b>LCS</b>	<b>Spike</b>	<b>Spike Dup</b>	<b>Method Blank</b>
Measured Value	50.82	57.31	55.10	
Actual Value	50	50	50	
	101.6 %	115 %	110.2 %	ND

<b>TOLUENE (PPB)</b>	<b>LCS</b>	<b>Spike</b>	<b>Spike Dup</b>	<b>Method Blank</b>
Measured Value	52.21	53.7	52.16	
Actual Value	50	50	50	
	104.4 %	107 %	104.3 %	ND

<b>ETHYLBENZENE (PPM)</b>	<b>LCS</b>	<b>Spike</b>	<b>Spike Dup</b>	<b>Method Blank</b>
Measured Value	42.58	56.7	53.61	
Actual Value	50	50	50	
	85.2 %	113 %	107.2 %	ND

<b>MP-XYLENE (PPB)</b>	<b>LCS</b>	<b>Spike</b>	<b>Spike Dup</b>	<b>Method Blank</b>
Measured Value	89.37	102	109.15	
Actual Value	100	100	100	
	89.4 %	102 %	109.1 %	ND

<b>O-XYLENE (PPB)</b>	<b>LCS</b>	<b>Spike</b>	<b>Spike Dup</b>	<b>Method Blank</b>
Measured Value	43.98	55.9	52.06	
Actual Value	50	50	50	
	88.0 %	112 %	104.1 %	ND

<b>TFT (Surrogate) (PPB)</b>	<b>LCS</b>	<b>Spike</b>	<b>Spike Dup</b>	<b>Method Blank</b>
Measured Value	56	53.3	53.56	49.43
Actual Value	50	50	50	50
	112.0 %	107 %	107.1 %	

**Gulf States Environmental Laboratory**  
**QA/QC Report**

GSEL No. 77055

Run Date: 10/03/12

	Surrogate/ Spike	Spiked Amount (ppm)	Amount Recovered (ppm)	% Recovered	Calibration compounds > 15% RSD	CCC Calibration Cpds > 30% RSD	Detection Limit
2-Fluorophenol	Surrogate	80	72.47	90.59			10.0
Phenol-d5	Surrogate	80	76.53	95.66			10.0
Phenol	Spike	60	62.37	103.95			10.0
2-Chlorophenol	Spike	60	64.29	107.15			10.0
1,4-Dichlorobenzene	Spike	60	60.38	100.63			10.0
n-Nitroso-di-n-propylamine	Spike	60	54.97	91.62			10.0
Nitrobenzene-d5	Surrogate	80	75.22	94.03			10.0
1,2,4-Trichlorobenzene	Spike	60	51.18	85.30			10.0
4-Chloro-3-methylphenol	Spike	60	61.42	102.37			10.0
2-Fluorobiphenyl	Surrogate	80	69.55	86.94			10.0
Acenaphthene	Spike	60	55.52	92.53			10.0
2,4-Dinitrotoluene	Spike	60	53.5	98.92			10.0
4-Nitrophenol	Spike	60	57.48	95.80			10.0
2,4,6-Tribromophenol	Surrogate	80	33.38	41.73			10.0
Pentachlorophenol	Spike	60	51.02	85.03			10.0
Pyrene	Spike	60	65.51	109.18			10.0
Terphenyl-d14	Surrogate	80	61.82	77.28			10.0



# GULF STATES ENVIRONMENTAL LABORATORIES

222 Spring Street; Shreveport, LA 71101 Phone: (318) 220-9067 Fax: (318) 221-3296  
LELAP Certification No.: 02082

## SAMPLE RECEIPT FORM

Client: Attia

GSEL# 77055-1-6

Received By/Date and Time: 1420 9-26-12 TAL

Sample Brought in By: Client / GSEL        Other       

Temperature: 3.2°C

Logged in By: TAL

- |  |              |                  |                             |
|--|--------------|------------------|-----------------------------|
| 1. Shipping container/cooler arrive in good condition?   | Yes <u>/</u> | No <u>      </u> | Not Present <u>      </u>   |
| 2. Was sufficient ice used? (If appropriate)             | Yes <u>/</u> | No <u>      </u> |                             |
| 3. Were custody seals intact on sample bottles?          | Yes <u>/</u> | No <u>      </u> | Not Present <u>      </u>   |
| 4. Were custody papers (Chain of Custody) with samples?  | Yes <u>/</u> | No <u>      </u> |                             |
| 5. Were custody papers properly filled out?              | Yes <u>/</u> | No <u>      </u> | Not Present <u>      </u>   |
| 6. Were custody papers signed by the client?             | Yes <u>/</u> | No <u>      </u> |                             |
| 7. Were custody papers signed by the lab?                | Yes <u>/</u> | No <u>      </u> |                             |
| 8. Did all sample containers arrive in good condition?   | Yes <u>/</u> | No <u>      </u> |                             |
| 9. Were all container labels complete?                   | Yes <u>/</u> | No <u>      </u> |                             |
| 10. Were correct containers used for requested analysis? | Yes <u>/</u> | No <u>      </u> |                             |
| 11. Did all container labels agree with custody papers?  | Yes <u>/</u> | No <u>      </u> |                             |
| 12. Was sufficient sample sent for requested analysis?   | Yes <u>/</u> | No <u>      </u> |                             |
| 13. Were all samples received within holding times?      | Yes <u>/</u> | No <u>      </u> |                             |
| 14. Do VOA vials have zero headspace?                    | Yes <u>/</u> | No <u>      </u> | None Received <u>      </u> |
| 15. Was preservation checked upon receipt?               | Yes <u>/</u> | No <u>      </u> | Initials <u>TAL</u>         |
| *VOA preservation checked after sample analysis.         |              |                  |                             |
| *Oil and Grease and TOC checked during sample analysis.  |              |                  |                             |
| 16. Was the correct preservative used?                   | Yes <u>/</u> | No <u>      </u> |                             |

Non-Conformance Issues:       

GSEL Rep/Contact Date & Time:       

Person Contacted:       

Client Instructions:



Case Narrative for:  
**GULF STATES ENVIRONMENTAL LABORATORIES**

Certificate of Analysis Number:

**L0020536**

<b>Report To:</b>  GULF STATES ENVIRONMENTAL LABORATORIES CHARLENE KILLGORE 222 SPRING ST  SHREVEPORT LA 71101- ph: (318) 220-9067      fax: (318) 221-3296	<b>Project Name:</b> 77055 <b>Site:</b> GULF STATES ENVIRONMENTAL <b>Site Address:</b>  <b>PO Number:</b> <b>State:</b> Louisiana <b>State Cert. No.:</b> 02048 <b>Date Reported:</b> 10/16/2012
--	---

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data for those samples spiked by the laboratory and may be applicable to other samples of similar matrix from the site. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group.

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process. If insufficient sample is supplied for MS/MSD, a Laboratory Control Sample (LCS) and a Laboratory Control Sample Duplicate (LCSD) are reported with the analytical batch and serve as the batch quality control (QC).

Results are reported on a Wet Weight Basis unless otherwise noted in the sample unit field as -dry.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

Accutest Gulf Coast is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.



L0020536 Page 1

10/16/2012

Cristina Thibaux  
Project Manager

Test results meet all requirements of NELAC, unless specified in the narrative.

Date

**GULF STATES ENVIRONMENTAL LABORATORIES**

Certificate of Analysis Number:

**L0020536**

**Report To:** GULF STATES ENVIRONMENTAL LABORATORIES  
CHARLENE KILLGORE  
222 SPRING ST

SHREVEPORT

LA

71101-

ph: (318) 220-9067

fax: (318) 221-3296

**Project Name:** 77055

**Site:** GULF STATES ENVIRONMENTAL

**Site Address:**

**PO Number:**

**State:** Louisiana

**State Cert. No.:** 02048

**Date Reported:** 10/16/2012

**Fax To:**

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
77055-1C-D	L0020536-01	Soil	09/26/2012 9:30	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-1E	L0020536-02	Soil	09/26/2012 9:30	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-2C-D	L0020536-03	Soil	09/26/2012 9:45	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-2E	L0020536-04	Soil	09/26/2012 9:45	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-3C-D	L0020536-05	Soil	09/26/2012 10:15	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-3E	L0020536-06	Soil	09/26/2012 10:15	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-4C-D	L0020536-07	Soil	09/26/2012 10:45	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-4E	L0020536-08	Soil	09/26/2012 10:45	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-5A-B	L0020536-09	Water	09/26/2012 13:00	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-5D	L0020536-10	Water	09/26/2012 13:00	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-6A-B	L0020536-11	Water	09/26/2012 13:20	9/28/2012 9:35:00 AM		<input type="checkbox"/>
77055-6D	L0020536-12	Water	09/26/2012 13:20	9/28/2012 9:35:00 AM		<input type="checkbox"/>

*Cristina C. Thibeaux*

10/16/2012

Cristina Thibeaux  
Project Manager

Date

Ron Benjamin  
Laboratory Director

Rebecca Haryett  
Quality Assurance Officer

Client Sample ID: 77055-1C-D      Collected: 09/26/2012 9:30      Lab Sample ID: L0020536-01

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
RECAP VOLATILE PETROLEUM HYDROCARBONS BY MA-DE				MCL	MA_VPH	EPH	Units: mg/Kg
C6-C8 Aliphatics	ND		1.2	50	10/04/12 16:44	RVS	4744926
C8-C10 Aliphatics	ND		2.5	50	10/04/12 16:44	RVS	4744926
C8-C10 Aromatics	ND		2.5	50	10/04/12 16:44	RVS	4744884
Surr: 2,5-Dibromotoluene	73.7		% 70-130	50	10/04/12 16:44	RVS	4744884
Surr: 2,5-Dibromotoluene	72.7		% 70-130	50	10/04/12 16:44	RVS	4744926

Prep Method	Prep Date	Prep Initials	Prep Factor
MA_VPH	09/26/2012 9:30	Field	0.82

**Qualifiers:** ND/U - Not Detected at the Reporting Limit      >MCL - Result Over Maximum Contamination Limit(MCL)  
 B - Analyte Detected In The Associated Method Blank      D - Surrogate Recovery Unreportable due to Dilution  
 \* - Surrogate Recovery Outside Advisable QC Limits      MI - Matrix Interference  
 J - Estimated value between MDL and PQL  
 E - Estimated Value exceeds calibration curve  
 TNTC - Too numerous to count

L0020536 Page 3  
10/16/2012 2:17:29 PM

Client Sample ID: 77055-1E

Collected: 09/26/2012 9:30

Lab Sample ID: L0020536-02

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>EXTRACTABLE PETROLEUM HYDROCARBONS- RECAP</b>				<b>MCL</b>	<b>MA</b>	<b>VPH</b>	<b>EPH</b>
							<b>Units: mg/Kg</b>
C10-C12 Aliphatics	6.1		1.7	1	10/06/12 3:23	E_G	4748724
C10-C12 Aromatics	ND		1.7	1	10/06/12 3:23	E_G	4748695
C12-C16 Aliphatics	ND		3.3	1	10/06/12 3:23	E_G	4748724
C12-C16 Aromatics	ND		5	1	10/06/12 3:23	E_G	4748695
C16-C21 Aromatics	ND		8.3	1	10/06/12 3:23	E_G	4748695
C16-C35 Aliphatics	ND		6	1	10/06/12 3:23	E_G	4748724
C21-C35 Aromatics	ND		5.3	1	10/06/12 3:23	E_G	4748695
Surr: 2-Fluorobiphenyl	69.7		% 40-140	1	10/06/12 3:23	E_G	4748695
Surr: Chloro-octadecane	80.2		% 40-140	1	10/06/12 3:23	E_G	4748724
Surr: o-Terphenyl	50.2		% 40-140	1	10/06/12 3:23	E_G	4748695

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3546	10/02/2012 9:30	JDF	1.00

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
 B - Analyte Detected In The Associated Method Blank  
 \* - Surrogate Recovery Outside Advisable QC Limits  
 J - Estimated value between MDL and PQL  
 E - Estimated Value exceeds calibration curve  
 TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
 D - Surrogate Recovery Unreportable due to Dilution  
 MI - Matrix Interference

L0020536 Page 4  
10/16/2012 2:17:30 PM

Client Sample ID: 77055-2C-D

Collected: 09/26/2012 9:45

Lab Sample ID: L0020536-03

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
RECAP VOLATILE PETROLEUM HYDROCARBONS BY MA-DE				MCL	MA_VPH_EPH	Units: mg/Kg	
C6-C8 Aliphatics	630		6.8	200	10/05/12 9:28	RVS	4744943
C8-C10 Aliphatics	300		14	200	10/05/12 9:28	RVS	4744943
C8-C10 Aromatics	130		14	200	10/05/12 9:28	RVS	4744901
Surr: 2,5-Dibromotoluene	86.1		% 70-130	200	10/05/12 9:28	RVS	4744901
Surr: 2,5-Dibromotoluene	84.9		% 70-130	200	10/05/12 9:28	RVS	4744943

Prep Method	Prep Date	Prep Initials	Prep Factor
MA_VPH	09/26/2012 9:45	Field	1.14

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 5  
10/16/2012 2:17:33 PM

Version 2.2 - Modified January 16, 2012

Client Sample ID:77055-2E

Collected: 09/26/2012 9:45

Lab Sample ID: L0020536-04

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>EXTRACTABLE PETROLEUM HYDROCARBONS- RECAP</b>				<b>MCL</b>	<b>MA_VPH_EPH</b>	<b>Units: mg/Kg</b>	
C10-C12 Aliphatics	130		1.7	1	10/06/12 4:45	E_G	4748719
C10-C12 Aromatics	4.1		1.7	1	10/06/12 4:45	E_G	4748696
C12-C16 Aliphatics	13		3.3	1	10/06/12 4:45	E_G	4748719
C12-C16 Aromatics	ND		5	1	10/06/12 4:45	E_G	4748696
C16-C21 Aromatics	ND		8.3	1	10/06/12 4:45	E_G	4748696
C16-C35 Aliphatics	ND		6	1	10/06/12 4:45	E_G	4748719
C21-C35 Aromatics	ND		5.3	1	10/06/12 4:45	E_G	4748696
Surr: 2-Fluorobiphenyl	79.6		% 40-140	1	10/06/12 4:45	E_G	4748696
Surr: Chloro-octadecane	96.2		% 40-140	1	10/06/12 4:45	E_G	4748719
Surr: o-Terphenyl	65.0		% 40-140	1	10/06/12 4:45	E_G	4748696

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3546	10/02/2012 9:30	JDF	1.00

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
 B - Analyte Detected In The Associated Method Blank  
 \* - Surrogate Recovery Outside Advisable QC Limits  
 J - Estimated value between MDL and PQL  
 E - Estimated Value exceeds calibration curve  
 TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
 D - Surrogate Recovery Unreportable due to Dilution  
 MI - Matrix Interference

L0020536 Page 6  
10/16/2012 2:17:34 PM



# ACCUTEST<sup>®</sup>

LABORATORIES

ACCUTEST GULF COAST  
500 AMBASSADOR CAFFERY PARKWAY  
SCOTT, LA 70583  
(337) 237-4775

Client Sample ID: 77055-3C-D

Collected: 09/26/2012 10:15

Lab Sample ID: L0020536-05

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
RECAP VOLATILE PETROLEUM HYDROCARBONS BY MA-DE				MCL	MA_VPH	EPH	Units: mg/Kg
C6-C8 Aliphatics	21		1.3	50	10/04/12 17:47	RVS	4744928
C8-C10 Aliphatics	33		2.5	50	10/04/12 17:47	RVS	4744928
C8-C10 Aromatics	13		2.5	50	10/04/12 17:47	RVS	4744886
Surr: 2,5-Dibromotoluene	86.2		% 70-130	50	10/04/12 17:47	RVS	4744928
Surr: 2,5-Dibromotoluene	79.2		% 70-130	50	10/04/12 17:47	RVS	4744886

Prep Method	Prep Date	Prep Initials	Prep Factor
MA_VPH	09/26/2012 10:15	Field	0.85

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected in The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 7  
10/16/2012 2:17:36 PM

Version 2.2 - Modified January 16, 2012

Client Sample ID: 77055-3E Collected: 09/26/2012 10:15 Lab Sample ID: L0020536-06

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>EXTRACTABLE PETROLEUM HYDROCARBONS- RECAP</b>				<b>MCL</b>	<b>MA_VPH_EPH</b>	<b>Units: mg/Kg</b>	
C10-C12 Aliphatics	2.8		1.7	1	10/06/12 5:13	E_G	4748720
C10-C12 Aromatics	ND		1.7	1	10/06/12 5:13	E_G	4748697
C12-C16 Aliphatics	ND		3.3	1	10/06/12 5:13	E_G	4748720
C12-C16 Aromatics	ND		5	1	10/06/12 5:13	E_G	4748697
C16-C21 Aromatics	ND		8.3	1	10/06/12 5:13	E_G	4748697
C16-C35 Aliphatics	ND		6	1	10/06/12 5:13	E_G	4748720
C21-C35 Aromatics	ND		5.3	1	10/06/12 5:13	E_G	4748697
Surr: 2-Fluorobiphenyl	84.8		% 40-140	1	10/06/12 5:13	E_G	4748697
Surr: Chloro-octadecane	91.9		% 40-140	1	10/06/12 5:13	E_G	4748720
Surr: o-Terphenyl	69.2		% 40-140	1	10/06/12 5:13	E_G	4748697

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3546	10/02/2012 9:30	JDF	1.00

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 8  
10/16/2012 2:17:37 PM



Client Sample ID: 77055-4C-D

Collected: 09/26/2012 10:45 Lab Sample ID: L0020536-07

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>RECAP VOLATILE PETROLEUM HYDROCARBONS BY MA-DE</b>				<b>MCL</b>	<b>MA_VPH</b>	<b>EPH</b>	<b>Units: mg/Kg</b>
C6-C8 Aliphatics	1.6		1.6	50	10/04/12 18:18	RVS	4744929
C8-C10 Aliphatics	4.6		3.1	50	10/04/12 18:18	RVS	4744929
C8-C10 Aromatics	ND		3.1	50	10/04/12 18:18	RVS	4744887
Surr: 2,5-Dibromotoluene	79.8		% 70-130	50	10/04/12 18:18	RVS	4744929
Surr: 2,5-Dibromotoluene	77.6		% 70-130	50	10/04/12 18:18	RVS	4744887

Prep Method	Prep Date	Prep Initials	Prep Factor
MA_VPH	09/26/2012 10:45	Field	1.04

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 9  
10/16/2012 2:17:38 PM

Client Sample ID: 77055-4E Collected: 09/26/2012 10:45 Lab Sample ID: L0020536-08

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #	
EXTRACTABLE PETROLEUM HYDROCARBONS- RECAP				MCL	MA	VPH	EPH	Units: mg/Kg
C10-C12 Aliphatics	7		1.7	1	10/06/12 5:41	E_G	4748721	
C10-C12 Aromatics	ND		1.7	1	10/06/12 5:41	E_G	4748698	
C12-C16 Aliphatics	ND		3.3	1	10/06/12 5:41	E_G	4748721	
C12-C16 Aromatics	ND		5	1	10/06/12 5:41	E_G	4748698	
C16-C21 Aromatics	ND		8.3	1	10/06/12 5:41	E_G	4748698	
C16-C35 Aliphatics	ND		6	1	10/06/12 5:41	E_G	4748721	
C21-C35 Aromatics	ND		5.3	1	10/06/12 5:41	E_G	4748698	
Surr: 2-Fluorobiphenyl	64.1		% 40-140	1	10/06/12 5:41	E_G	4748698	
Surr: Chloro-octadecane	81.6		% 40-140	1	10/06/12 5:41	E_G	4748721	
Surr: o-Terphenyl	49.3		% 40-140	1	10/06/12 5:41	E_G	4748698	

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3546	10/02/2012 9:30	JDF	1.00

**Qualifiers:** ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)  
 B - Analyte Detected In The Associated Method Blank D - Surrogate Recovery Unreportable due to Dilution  
 \* - Surrogate Recovery Outside Advisable QC Limits MI - Matrix Interference  
 J - Estimated value between MDL and PQL  
 E - Estimated Value exceeds calibration curve  
 TNTC - Too numerous to count

L0020536 Page 10  
10/16/2012 2:17:39 PM

Version 2.2 - Modified January 16, 2012

Client Sample ID:77055-5A-B

Collected: 09/26/2012 13:00

Lab Sample ID: L0020536-09

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>RECAP VOLATILE PETROLEUM HYDROCARBONS BY MA-DE</b>				<b>MCL</b>	<b>MA_VPH_EPH</b>	<b>Units: mg/L</b>	
C6-C8 Aliphatics	0.069		0.03	1	10/05/12 2:39	RVS	4744980
C8-C10 Aliphatics	ND		0.06	1	10/05/12 2:39	RVS	4744980
C8-C10 Aromatics	ND		0.06	1	10/05/12 2:39	RVS	4744959
Surr: 2,5-Dibromotoluene	88.5		% 70-130	1	10/05/12 2:39	RVS	4744980
Surr: 2,5-Dibromotoluene	87.2		% 70-130	1	10/05/12 2:39	RVS	4744959

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 11  
10/16/2012 2:17:40 PM

Version 2.2 - Modified January 16, 2012

Client Sample ID: 77055-5D

Collected: 09/26/2012 13:00

Lab Sample ID: L0020536-10

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>EXTRACTABLE PETROLEUM HYDROCARBONS- RECAP</b>				<b>MCL</b>	<b>MA</b>	<b>VPH</b>	<b>EPH</b>
							<b>Units: mg/L</b>
C10-C12 Aliphatics	ND		0.15	1	10/12/12 15:00	E_G	4757239
C10-C12 Aromatics	ND		0.15	1	10/12/12 15:00	E_G	4757172
C12-C16 Aliphatics	ND		0.15	1	10/12/12 15:00	E_G	4757239
C12-C16 Aromatics	ND		0.15	1	10/12/12 15:00	E_G	4757172
C16-C21 Aromatics	ND		0.15	1	10/12/12 15:00	E_G	4757172
C16-C35 Aliphatics	ND		0.15	1	10/12/12 15:00	E_G	4757239
C21-C35 Aromatics	ND		0.15	1	10/12/12 15:00	E_G	4757172
Surr: 2-Fluorobiphenyl	46.5	%	40-140	1	10/12/12 15:00	E_G	4757172
Surr: Chloro-octadecane	100	%	40-140	1	10/12/12 15:00	E_G	4757239
Surr: o-Terphenyl	57.8	%	40-140	1	10/12/12 15:00	E_G	4757172

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3511	10/03/2012 8:15	DWB	1.00

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 12  
10/16/2012 2:17:41 PM

Version 2.2 - Modified January 16, 2012

Client Sample ID: 77055-6A-B Collected: 09/26/2012 13:20 Lab Sample ID: L0020536-11

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
RECAP VOLATILE PETROLEUM HYDROCARBONS BY MA-DE				MCL	MA	VPH	EPH
				Units: mg/L			
C6-C8 Aliphatics	ND		0.03	1	10/05/12 10:30	RVS	4744994
C8-C10 Aliphatics	ND		0.06	1	10/05/12 10:30	RVS	4744994
C8-C10 Aromatics	ND		0.06	1	10/05/12 10:30	RVS	4744973
Surr: 2,5-Dibromotoluene	78.7		% 70-130	1	10/05/12 10:30	RVS	4744973
Surr: 2,5-Dibromotoluene	77.2		% 70-130	1	10/05/12 10:30	RVS	4744994

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 13  
10/16/2012 2:17:42 PM

Version 2.2 - Modified January 16, 2012

Client Sample ID:77055-6D

Collected: 09/26/2012 13:20

Lab Sample ID: L0020536-12

Site: GULF STATES ENVIRONMENTAL

Analyses/Method	Result	QUAL	Rep.Limit	Dil. Factor	Date Analyzed	Analyst	Seq. #
<b>EXTRACTABLE PETROLEUM HYDROCARBONS- RECAP</b>				<b>MCL</b>	<b>MA_VPH</b>	<b>EPH</b>	<b>Units: mg/L</b>
C10-C12 Aliphatics	ND		0.15	1	10/12/12 15:53	E_G	4757240
C10-C12 Aromatics	ND		0.15	1	10/12/12 15:53	E_G	4757173
C12-C16 Aliphatics	ND		0.15	1	10/12/12 15:53	E_G	4757240
C12-C16 Aromatics	ND		0.15	1	10/12/12 15:53	E_G	4757173
C16-C21 Aromatics	ND		0.15	1	10/12/12 15:53	E_G	4757173
C16-C35 Aliphatics	0.26		0.15	1	10/12/12 15:53	E_G	4757240
C21-C35 Aromatics	ND		0.15	1	10/12/12 15:53	E_G	4757173
Surr: 2-Fluorobiphenyl	86.5	%	40-140	1	10/12/12 15:53	E_G	4757173
Surr: Chloro-octadecane	93.5	%	40-140	1	10/12/12 15:53	E_G	4757240
Surr: o-Terphenyl	68.4	%	40-140	1	10/12/12 15:53	E_G	4757173

Prep Method	Prep Date	Prep Initials	Prep Factor
SW3511	10/03/2012 8:15	DWB	1.00

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
\* - Surrogate Recovery Outside Advisable QC Limits  
J - Estimated value between MDL and PQL  
E - Estimated Value exceeds calibration curve  
TNTC - Too numerous to count

>MCL - Result Over Maximum Contamination Limit(MCL)  
D - Surrogate Recovery Unreportable due to Dilution  
MI - Matrix Interference

L0020536 Page 14  
10/16/2012 2:17:42 PM

## *Quality Control Documentation*

**Quality Control Report**

**GULF STATES ENVIRONMENTAL LABORATORIES**

77055

Analysis: Extractable Petroleum Hydrocarbons- RECAP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: 115470

**Method Blank**

**Samples in Analytical Batch:**

RunID: TPHA\_121005D-4748723 Units: mg/Kg  
Analysis Date: 10/06/2012 2:01 Analyst: E\_G  
Preparation Date: 10/02/2012 9:30 Prep By: JDF Method: SW3546

Lab Sample ID	Client Sample ID
L0020536-02A	77055-1E
L0020536-04A	77055-2E
L0020536-06A	77055-3E
L0020536-08A	77055-4E

Analyte	Result	Rep Limit
C10-C12 Aliphatics	ND	1.7
C12-C16 Aliphatics	ND	3.3
C16-C35 Aliphatics	ND	6.0
Surr: Chloro-octadecane	97.5	40-140

**Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)**

RunID: TPHA\_121005D-4748714 Units: mg/Kg  
Analysis Date: 10/06/2012 2:28 Analyst: E\_G  
Preparation Date: 10/02/2012 9:30 Prep By: JDF Method: SW3546

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
C10-C12 Aliphatics	5.00	3.78	75.6	5.00	3.58	71.7	5.3	25	40	140
C12-C16 Aliphatics	10.0	7.33	73.3	10.0	7.24	72.4	1.2	25	40	140
C16-C35 Aliphatics	45.0	33.0	73.4	45.0	32.7	72.7	0.8	25	40	140
Surr: Chloro-octadecane	5.00	4.03	80.5	5.00	4.05	81.0	0.5	30	40	140

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

Sample Spiked: L0020536-02  
RunID: TPHA\_121005D-4748717 Units: mg/Kg  
Analysis Date: 10/06/2012 3:51 Analyst: E\_G  
Preparation Date: 10/02/2012 9:30 Prep By: JDF Method: SW3546

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
C10-C12 Aliphatics	ND	5	10.4	209 *	5	10.4	208 *	0.393	50	40	140

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

L0020536 Page 16

10/16/2012 2:17:56 PM

Version 2.1 - Modified February 11, 2011



Quality Control Report

GULF STATES ENVIRONMENTAL LABORATORIES

77055

Analysis: Extractable Petroleum Hydrocarbons- RECAP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: 115470

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

Sample Spiked: L0020536-02  
RunID: TPHA\_121005D-4748717 Units: mg/Kg  
Analysis Date: 10/06/2012 3:51 Analyst: E\_G  
Preparation Date: 10/02/2012 9:30 Prep By: JDF Method: SW3546

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
C12-C16 Aliphatics	ND	10	9.47	94.7	10	10.2	102	6.99	50	40	140
C16-C35 Aliphatics	ND	45	32.5	72.2	45	37.4	83.1	14.1	50	40	140
Surr: Chloro-octadecane	ND	5	3.62	72.4	5	4.19	83.8	14.6	30	40	140

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

L0020536 Page 17

10/16/2012 2:17:57 PM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Version 2.1 - Modified February 11, 2011

Quality Control Report

GULF STATES ENVIRONMENTAL LABORATORIES

77055

Analysis: Extractable Petroleum Hydrocarbons- RECAP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: 115470

Method Blank

Samples in Analytical Batch:

RunID: TPHA\_121005C-4748684 Units: mg/Kg  
Analysis Date: 10/06/2012 2:01 Analyst: E\_G  
Preparation Date: 10/02/2012 9:30 Prep By: JDF Method: SW3546

Lab Sample ID	Client Sample ID
L0020536-02A	77055-1E
L0020536-04A	77055-2E
L0020536-06A	77055-3E
L0020536-08A	77055-4E

Analyte	Result	Rep Limit
C10-C12 Aromatics	ND	1.7
C12-C16 Aromatics	ND	5.0
C16-C21 Aromatics	ND	8.3
C21-C35 Aromatics	ND	5.3
Surr: 2-Fluorobiphenyl	78.6	40-140
Surr: o-Terphenyl	68.6	40-140

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: TPHA\_121005C-4748685 Units: mg/Kg  
Analysis Date: 10/06/2012 2:28 Analyst: E\_G  
Preparation Date: 10/02/2012 9:30 Prep By: JDF Method: SW3546

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
C10-C12 Aromatics	5.00	3.56	71.2	5.00	3.63	72.6	1.9	25	40	140
C12-C16 Aromatics	15.0	10.3	68.9	15.0	10.5	70.3	2.0	25	40	140
C16-C21 Aromatics	25.0	17.0	68.1	25.0	17.4	69.5	2.0	25	40	140
C21-C35 Aromatics	40.0	29.9	74.8	40.0	30.5	76.1	1.8	25	40	140
Surr: 2-Fluorobiphenyl	12.5	9.20	73.6	12.5	9.31	74.5	1.2	30	40	140
Surr: o-Terphenyl	5.00	2.96	59.2	5.00	2.97	59.5	0.4	30	40	140

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

Sample Spiked: L0020536-02  
RunID: TPHA\_121005C-4748688 Units: mg/Kg  
Analysis Date: 10/06/2012 3:51 Analyst: E\_G  
Preparation Date: 10/02/2012 9:30 Prep By: JDF Method: SW3546

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

L0020536 Page 18

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

10/16/2012 2:17:59 PM

Version 2.1 - Modified February 11, 2011

## Quality Control Report

## GULF STATES ENVIRONMENTAL LABORATORIES

77055

 Analysis: Extractable Petroleum Hydrocarbons- RECAP  
 Method: MA\_VPH\_EPH

 WorkOrder: L0020536  
 Lab Batch ID: 115470

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
C10-C12 Aromatics	ND	5	3.23	64.6	5	3.43	68.5	5.81	50	40	140
C12-C16 Aromatics	ND	15	9.47	63.1	15	10.2	67.9	7.35	50	40	140
C16-C21 Aromatics	ND	25	16.5	65.9	25	17.4	69.5	5.28	50	40	140
C21-C35 Aromatics	ND	40	29.7	74.3	40	31.4	78.4	5.38	50	40	140
Surr. 2-Fluorobiphenyl	ND	12.5	9.17	73.4	12.5	8.58	68.7	6.63	30	40	140
Surr. o-Terphenyl	ND	5	2.54	50.8	5	2.71	54.1	6.32	30	40	140

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
 B - Analyte Detected In The Associated Method Blank  
 J - Estimated Value Between MDL And PQL  
 E - Estimated Value exceeds calibration curve  
 N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
 TNTC - Too numerous to count

MI - Matrix Interference  
 D - Recovery Unreportable due to Dilution  
 \* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

L0020536 Page 19

10/16/2012 2:17:59 PM

Version 2.1 - Modified February 11, 2011

Quality Control Report

GULF STATES ENVIRONMENTAL LABORATORIES

77055

Analysis: Extractable Petroleum Hydrocarbons- RECAP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: 115532

Method Blank

Samples in Analytical Batch:

RunID: TPHA_121012B-4757234	Units: mg/L	<u>Lab Sample ID</u>	<u>Client Sample ID</u>
Analysis Date: 10/12/2012 12:43	Analyst: E_G	L0020536-10A	77055-5D
Preparation Date: 10/03/2012 8:15	Prep By: DW Method: SW3511	L0020536-12A	77055-6D

Analyte	Result	Rep Limit
C10-C12 Aliphatics	ND	0.15
C12-C16 Aliphatics	ND	0.15
C16-C35 Aliphatics	ND	0.15
Surr: Chloro-octadecane	118.8	40-140

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: TPHA_121012B-4757235	Units: mg/L
Analysis Date: 10/12/2012 13:10	Analyst: E_G
Preparation Date: 10/03/2012 8:15	Prep By: DW Method: SW3511

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
C10-C12 Aliphatics	0.500	0.497	99.4	0.500	0.442	88.5	11.7	25	40	140
C12-C16 Aliphatics	1.00	0.888	88.8	1.00	0.799	79.9	10.6	25	40	140
C16-C35 Aliphatics	4.50	3.73	82.8	4.50	3.43	76.3	8.2	25	40	140
Surr: Chloro-octadecane	0.400	0.505	126	0.400	0.458	114	9.8	30	40	140

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

L0020536 Page 20

10/16/2012 2:18:01 PM

**Quality Control Report**

**GULF STATES ENVIRONMENTAL LABORATORIES**

77055

Analysis: Extractable Petroleum Hydrocarbons- RECAP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536

Lab Batch ID: 115532

Method Blank

Samples in Analytical Batch:

RunID: TPHA\_121012A-4757167 Units: mg/L

Lab Sample ID

Client Sample ID

Analysis Date: 10/12/2012 12:43

Analyst: E\_G

L0020536-10A

77055-5D

Preparation Date: 10/03/2012 8:15

Prep By: DW Method: SW3511

L0020536-12A

77055-6D

Analyte	Result	Rep Limit
C10-C12 Aromatics	ND	0.15
C12-C16 Aromatics	ND	0.15
C16-C21 Aromatics	ND	0.15
C21-C35 Aromatics	ND	0.15
Surr: 2-Fluorobiphenyl	94.5	40-140
Surr: o-Terphenyl	68.2	40-140

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: TPHA\_121012A-4757168 Units: mg/L

Analysis Date: 10/12/2012 13:10

Analyst: E\_G

Preparation Date: 10/03/2012 8:15

Prep By: DW Method: SW3511

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
C10-C12 Aromatics	0.500	0.470	93.9	0.500	0.399	79.8	16.2	25	40	140
C12-C16 Aromatics	1.50	1.29	86.1	1.50	1.13	75.5	13.1	25	40	140
C16-C21 Aromatics	2.50	2.02	80.9	2.50	1.76	70.4	13.8	25	40	140
C21-C35 Aromatics	4.00	3.34	83.5	4.00	3.08	76.9	8.2	25	40	140
Surr: 2-Fluorobiphenyl	2.00	1.55	77.7	2.00	1.43	71.5	8.2	30	40	140
Surr: o-Terphenyl	0.400	0.269	67.2	0.400	0.239	59.7	11.8	30	40	140

**Qualifiers:** ND/U - Not Detected at the Reporting Limit

B - Analyte Detected In The Associated Method Blank

J - Estimated Value Between MDL And PQL

E - Estimated Value exceeds calibration curve

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

MI - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

L0020536 Page 21

10/16/2012 2:16:02 PM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Version 2.1 - Modified February 11, 2011

**Quality Control Report**

**GULF STATES ENVIRONMENTAL LABORATORIES**

77055

Analysis: RECAP Volatile Petroleum Hydrocarbons by MA-DEP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: R296106

Method Blank

RunID: HPEE\_121004A-4744876 Units: mg/Kg  
Analysis Date: 10/04/2012 12:36 Analyst: RVS  
Preparation Date: 10/04/2012 12:36 Prep By: Method: MA\_VPH

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
L0020536-01A	77055-1C-D
L0020536-03A	77055-2C-D
L0020536-05A	77055-3C-D
L0020536-07A	77055-4C-D

Analyte	Result	Rep Limit
C8-C10 Aromatics	ND	2.5
Surr: 2,5-Dibromotoluene	76.1	70-130

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: HPEE\_121004A-4744874 Units: mg/Kg  
Analysis Date: 10/04/2012 11:35 Analyst: RVS  
Preparation Date: 10/04/2012 11:35 Prep By: Method: MA\_VPH

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
C8-C10 Aromatics	12.5	12.0	95.8	12.5	12.0	95.6	0.2	50	70	130
Surr: 2,5-Dibromotoluene	10000	7500	75.0	10000	7460	74.6	0.5	30	70	130

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

Sample Spiked: L0020520-01  
RunID: HPEE\_121004A-4744896 Units: mg/Kg  
Analysis Date: 10/04/2012 22:58 Analyst: RVS  
Preparation Date: 09/28/2012 18:11 Prep By: mf Method: MA\_VPH

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
C8-C10 Aromatics	ND	11.4	11.3	80.8	11.4	12.5	91.3	10.0	50	70	130
Surr: 2,5-Dibromotoluene	ND	9090	7400	81.5	9090	7600	83.6	2.55	30	70	130

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Version 2.1 - Modified February 11, 2011

L0020536 Page 22

10/16/2012 2:18:04 PM

Quality Control Report

GULF STATES ENVIRONMENTAL LABORATORIES

77055

Analysis: RECAP Volatile Petroleum Hydrocarbons by MA-DEP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: R296108

Method Blank

Samples in Analytical Batch:

RunID: HPEE\_121004B-4744918 Units: mg/Kg  
Analysis Date: 10/04/2012 12:36 Analyst: RVS  
Preparation Date: 10/04/2012 12:36 Prep By: Method: MA\_VPH

Lab Sample ID Client Sample ID  
L0020536-01A 77055-1C-D  
L0020536-03A 77055-2C-D  
L0020536-05A 77055-3C-D  
L0020536-07A 77055-4C-D

Analyte	Result	Rep Limit
C6-C8 Aliphatics	ND	1.5
C8-C10 Aliphatics	ND	2.5
Surr: 2,5-Dibromotoluene	73.5	70-130

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: HPEE\_121004B-4744916 Units: mg/Kg  
Analysis Date: 10/04/2012 11:35 Analyst: RVS  
Preparation Date: 10/04/2012 11:35 Prep By: Method: MA\_VPH

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
C6-C8 Aliphatics	7.50	8.58	114	7.50	8.11	108	5.7	50	70	130
C8-C10 Aliphatics	12.5	14.0	112	12.5	13.8	111	1.2	50	70	130
Surr: 2,5-Dibromotoluene	10000	7360	73.6	10000	7360	73.6	0.0	30	70	130

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

Sample Spiked: L0020520-01  
RunID: HPEE\_121004B-4744938 Units: mg/Kg  
Analysis Date: 10/04/2012 22:58 Analyst: RVS  
Preparation Date: 09/28/2012 18:11 Prep By: mf Method: MA\_VPH

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
C6-C8 Aliphatics	ND	6.82	7.08	92.4	6.82	7.70	101	8.42	50	70	130
C8-C10 Aliphatics	ND	11.4	11.9	105	11.4	12.9	114	8.33	50	70	130
Surr: 2,5-Dibromotoluene	ND	9090	7390	81.3	9090	7660	84.2	3.57	30	70	130

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

L0020536 Page 23

10/16/2012 2:18:06 PM

Version 2.1 - Modified February 11, 2011

Quality Control Report

GULF STATES ENVIRONMENTAL LABORATORIES

77055

Analysis: RECAP Volatile Petroleum Hydrocarbons by MA-DEP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: R296108

---

---

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Version 2.1 - Modified February 11, 2011

L0020536 Page 24

10/16/2012 2:18:06 PM



**Quality Control Report**

**GULF STATES ENVIRONMENTAL LABORATORIES**

77055

Analysis: RECAP Volatile Petroleum Hydrocarbons by MA-DEP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: R296110

Method Blank

RunID: HPEE\_121004C-4744958 Units: mg/L  
Analysis Date: 10/05/2012 2:07 Analyst: RVS

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
L0020536-09A	77055-5A-B
L0020536-11A	77055-6A-B

Analyte	Result	Rep Limit
C8-C10 Aromatics	ND	0.060
Surr: 2,5-Dibromotoluene	84.8	70-130

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: HPEE\_121004C-4744955 Units: mg/L  
Analysis Date: 10/05/2012 0:32 Analyst: RVS

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
C8-C10 Aromatics	0.250	0.234	93.7	0.250	0.248	99.2	5.6	50	70	130
Surr: 2,5-Dibromotoluene	200	165	82.6	200	167	83.6	1.2	30	70	130

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

Sample Spiked: L0020536-11  
RunID: HPEE\_121004C-4745040 Units: mg/L  
Analysis Date: 10/05/2012 3:10 Analyst: RVS

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
C8-C10 Aromatics	ND	25	25.0	100	25	23.7	95.0	5.26	50	70	130
Surr: 2,5-Dibromotoluene	ND	20000	16200	80.9	20000	17000	84.8	4.68	30	70	130

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

L0020536 Page 25

10/16/2012 2:18:08 PM

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

Version 2.1 - Modified February 11, 2011

Quality Control Report

GULF STATES ENVIRONMENTAL LABORATORIES

77055

Analysis: RECAP Volatile Petroleum Hydrocarbons by MA-DEP  
Method: MA\_VPH\_EPH

WorkOrder: L0020536  
Lab Batch ID: R296111

Method Blank

RunID: HPEE\_121004D-4744979 Units: mg/L  
Analysis Date: 10/05/2012 2:07 Analyst: RVS

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
L0020536-09A	77055-5A-B
L0020536-11A	77055-6A-B

Analyte	Result	Rep Limit
C6-C8 Aliphatics	ND	0.030
C8-C10 Aliphatics	ND	0.060
Surr: 2,5-Dibromotoluene	85.0	70-130

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

RunID: HPEE\_121004D-4744976 Units: mg/L  
Analysis Date: 10/05/2012 0:32 Analyst: RVS

Analyte	LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
6-C8 Aliphatics	0.150	0.161	107	0.150	0.166	110	3.0	50	70	130
8-C10 Aliphatics	0.250	0.267	107	0.250	0.278	111	4.0	50	70	130
Surr: 2,5-Dibromotoluene	200	167	83.5	200	166	82.8	0.8	30	70	130

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

Sample Spiked: L0020536-11  
RunID: HPEE\_121004D-4745039 Units: mg/L  
Analysis Date: 10/05/2012 3:10 Analyst: RVS

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
C8 Aliphatics	ND	15	16.7	111	15	15.6	104	6.56	50	70	130
C10 Aliphatics	ND	25	27.3	109	25	26.6	106	2.70	50	70	130
Surr: 2,5-Dibromotoluene	ND	20000	16400	82.0	20000	17000	84.8	3.41	30	70	130

**Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

Results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

L0020536 Page 26  
10/16/2012 2:18:09 PM



ACCUTEST GULF COAST  
500 AMBASSADOR CAFFERY PARKWAY  
SCOTT, LA 70583  
(337) 237-4775

Quality Control Report

GULF STATES ENVIRONMENTAL LABORATORIES

77055

Analysis:	RECAP Volatile Petroleum Hydrocarbons by MA-DEP	WorkOrder:	L0020536
Method:	MA_VPH_EPH	Lab Batch ID:	R296111

---

- Qualifiers:** ND/U - Not Detected at the Reporting Limit  
B - Analyte Detected In The Associated Method Blank  
J - Estimated Value Between MDL And PQL  
E - Estimated Value exceeds calibration curve  
N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.  
TNTC - Too numerous to count

- MI - Matrix Interference  
D - Recovery Unreportable due to Dilution  
\* - Recovery Outside Advisable QC Limits

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

L0020536 Page 27  
10/16/2012 2:18:10 PM

*Sample Receipt Checklist  
And  
Chain of Custody*

**Sample Receipt Checklist**

Workorder:	L0020536	Received By:	GAS
Date and Time Received:	9/28/2012 9:35:00 AM	Carrier name:	FedEx-Std 1 Day PM
Temperature:	3°C	Chilled by:	Water Ice

- |  |   |                             |   |
|--|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition?              | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| 2. Custody seals intact on shipping container/cooler?        | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles?                   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| 4. Chain of custody present?                                 | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 5. Chain of custody signed when relinquished and received?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 6. Chain of custody agrees with sample labels?               | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 7. Samples in proper container/bottle?                       | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 8. Sample containers intact?                                 | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 9. Sufficient sample volume for indicated test?              | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 10. All samples received within holding time?                | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 11. Container/Temp Blank temperature in compliance?          | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 12. Water - VOA vials have zero headspace?                   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | VOA Vials Not Present <input type="checkbox"/>  |
| 13. Water - Preservation checked upon receipt (except VOA*)? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Applicable <input type="checkbox"/>         |

\*VOA Preservation Checked After Sample Analysis

Accutest Representative:

Contact Date & Time:

Client Name Contacted:

Non Conformance  
Issues:

Client Instructions:



**FedEx** *US Airbill*  
Express

 FedEx  
Tracking  
Number

8754 0059 5211

0215

Recipient's Copy

RECIPIENT: PEEL HERE

 1 From This portion can be removed for Recipient's records.  
 Date 9-27-12 FedEx Tracking Number 875400595211

 Sender's Name Scott Martin Phone 318-220-9067

 Company GULF STATES ENVIRONMENTAL LAB

 Address 222 SPRING ST

 City SHREVEPORT State LA ZIP 71101-2818

2 Your Internal Billing Reference

3 To Recipient's Name \_\_\_\_\_ Phone \_\_\_\_\_

 Company Accutest Labs

 Address 500 Ambassador Caffery Pkwy  
 We cannot deliver to P.O. boxes or P.O. ZIP codes.

 Address \_\_\_\_\_  
 Use this line for the HOLD location address or for continuation of your stopping address.

 City Scott State LA ZIP 70583

0434836088



8754 0059 5211

## 4a Express Package Service

\* To meet location.

Packages up to 150 lbs

- ☒ FedEx Priority Overnight Next business morning. \* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Standard Overnight Next business afternoon. \* Saturday Delivery NOT available.
- ☐ FedEx First Overnight Earliest next business morning delivery to select locations. \*
- ☐ FedEx 2Day Second business day. \* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver Third business day. \* Saturday Delivery NOT available.

## 4b Express Freight Service

\*\* To meet location.

Packages over 150 lbs

- ☐ FedEx 1Day Freight Next business day. \* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx 2Day Freight Second business day. \* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx 3Day Freight Third business day. \* Saturday Delivery NOT available.

## 5 Packaging

\* Declared value limit \$500.

- ☐ FedEx Envelope\* ☐ FedEx Pak\* Includes FedEx Small Pak and FedEx Large Pak.
- ☐ FedEx Box ☐ FedEx Tube ☒ Other

## 6 Special Handling and Delivery Signature Options

- ☐ SATURDAY Delivery NOT available for FedEx Standard Overnight, FedEx Express Saver, or FedEx 2Day Freight.
- ☒ No Signature Required Package may be left without obtaining a signature for delivery.
- ☐ Direct Signature Someone at recipient's address may sign for delivery. Fee applies.
- ☐ Indirect Signature If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

## Does this shipment contain dangerous goods?

- ☒ No ☐ Yes One box must be checked.
- ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required.
- ☐ Dry Ice Dry Ice, 6 UN 1845 ☐ Cargo Aircraft Only

## 7 Payment Bill to:

- ☒ Sender Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No.
- ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

 Total Packages 1 Total Weight 49 lbs. Credit Card Acct. \_\_\_\_\_

\*Our liability is limited to \$100 unless you declare a higher value. See the current FedEx Service Guide for details.

605

Rev. Date 2/10 • Part #150279 • ©1994-2010 FedEx • PRINTED IN U.S.A. SRS