

AP-82

**Monitoring
Report**

August, 2012



HESS CORPORATION
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Woodbridge, NJ 07095

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February 28, 2013

Mr. Glenn Von Gonten
New Mexico Oil Conservation District
1220 South St. Francis Drive
Santa Fe, NM 87505

VIA: Priority Mail and Delivery Confirmation

Re: Groundwater Monitoring Report Sampled August 2012 AT-22
Texaco Mattern Battery #26
Sec 20, T-19S, R-37E, Lea County

Dear Mr. Von Gonten:

Enclosed please find the Groundwater Monitoring Report for the Texaco Mattern Battery #26 located in Monument, NM.

The report includes pertinent historical site information as well as data collected during groundwater sampling in August 2012.

Please note that Hess proposes to install one additional monitoring well 50' southwest of monitoring well MW-8.

If you should have any further questions or require additional information, please feel free to contact the undersigned at 732-750-7099.

Sincerely,

Donald G. Bull
Senior Specialist

cc: Rex Meyer, GeoMonitoring Services
Jim Griswold, New Mexico Oil Conservation Division

TEXACO MATTERN BATTERY #26

SECTION 20, TOWNSHIP 19 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

GROUNDWATER MONITORING REPORT SAMPLED AUGUST 2012

Prepared for:



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1.0 INTRODUCTION

The Texaco Mattern Battery #26 site is located northwest of Monument, New Mexico in southern Lea County. The legal description of the site is the southwest quarter of Section 20, Township 19 South, and Range 37 East. The site lies within the Pecos River Valley section of the Great Plains physiographic province and is located in the southern margin of the Llano Estacado. The site was formerly a tank battery and associated pit operated by Texaco from the late 1930's to 1991 when the battery was decommissioned by the Hess Corporation (Hess). The pit at the site was decommissioned by Texaco prior to 1991. A regional location map showing the site location is included as **Figure 1**.

On December 5, 2005, the New Mexico Oil Conservation Division (NMOCD) approved a generic work plan submitted by Hess to investigate and remediate locations within the North Monument Grayburg San Andreas Unit (NMGSAU) that have historical contamination.

Remediation at the site began on December 19, 2006 with a scan for naturally occurring radioactive material. The results of the scan indicated that naturally occurring radioactive material was not present.

In late December 2006, excavation began onsite with the tank pad at the northeast corner of the site and proceeded to the south. Excavation of the pit at the southernmost end of the site began in January 2007. On January 3, 2007, BBC International, Inc. (BBC) collected five soil samples from the bottom of the battery excavation, the soil sample results showed chloride concentrations above recommended action level of 250 milligrams per kilogram (mg/kg) in two of the five samples. Based on these results, the associated pit was further excavated and widened. On January 10, 2007, two soil samples were taken from the pit in areas of observable hydrocarbon impacted soil. The results of these samples were above the recommended action level of 100 mg/kg for total petroleum hydrocarbons (TPH). Based on these results the associated pit was further excavated to a depth of 15 feet below ground surface (bgs). On January 22, 2007, a 2 foot wide test hole was placed in the western floor of the excavation where hydrocarbon stained soils extended deeper. Groundwater was encountered at 17 feet bgs. On January 22, 2007, Hess notified the NMOCD via email of the potential groundwater impacts at the site. On January 29, 2007, NMOCD issued a directive requiring Hess to submit a Stage I Abatement Plan for the site.

In April 2007, a Stage I Abatement Plan was submitted to NMOCD by Hess including a proposal to install soil borings and monitoring wells to delineate the contamination onsite. Per the Stage I Abatement Plan, four soil borings (SB-1 through SB-4) and eight monitoring wells (MW-1 through MW-8) were installed. The locations of these soil borings and monitoring wells are shown on **Figure 2**. Groundwater samples were collected from each of the eight monitoring wells and were tested for Benzene, Toluene, Ethylbenzene, and total Xylene (BTEX) via EPA method 8260B, Polynuclear Aromatic

Hydrocarbons (PAHs) via EPA method 504, and dissolved metals. The laboratory results indicated BTEX values below recommended action levels, while PAH and dissolved metals were non-detect for all constituents of concern (COC).

Currently, the site is situated on and surrounded by fee land owned by Jim T. Cooper.

2.0 MONITORING WELL GAUGING ACTIVITIES

All eight monitoring wells onsite were gauged on August 22, 2012, with the exception of MW-5, which has been plugged and abandoned, and MW-8, which was gauged on July 13, 2012. The monitoring well locations are shown on **Figure 2**.

The depth to water (DTW) and presence of liquid phase hydrocarbons (LPH), if any, were gauged using an oil/water interface probe capable of measuring to the nearest 0.01 ft. The groundwater level measurements were converted to groundwater elevations using the top of monitoring well casing elevations. Groundwater elevations were adjusted for the presence of LPH, as appropriate.

As shown in **Table 1** and on **Figure 3**, groundwater elevations ranged from 3,616.56 feet mean sea level (ft msl) in monitoring well MW-6 to 3,609.25 ft msl in monitoring well MW-8. The interpreted groundwater flow direction is to the south-southeast.

3.0 MONITORING WELL DEVELOPMENT ACTIVITIES

Due to the long period of time since the previous sampling event, all wells onsite were redeveloped using a surge block. On July 13-16, 2012, BBC International, Inc. developed all monitoring well onsite to ensure that the well recharge rates would be sufficient for sampling and that accurate water samples would be obtained. During well development, monitoring well MW-1 had a DTW of 22.13 ft, monitoring well MW-2 had a DTW of 23.60 ft, monitoring well MW-3 had a DTW of 22.45 ft, monitoring well MW-4 had a DTW of 20.40 ft, monitoring well MW-6 had a DTW of 22.70 ft, monitoring well MW-7 had a DTW of 20.50 ft, and monitoring well MW-8 had a DTW of 24.64 ft. Between 8 and 14 gallons of groundwater were purged from each well during well development. A sheen was detected during well development in monitoring well MW-8, so it will not be sampled during this sampling event. No LPH or odors were present in any of the monitoring wells onsite during well development. Well development data can be found on **Table 3**.

4.0 MONITORING WELL SAMPLING ACTIVITIES

On August 22, 2012, monitoring wells MW-1 through MW-4, MW-6, and MW-7 were sampled. Monitoring well MW-5 has been plugged and abandoned and monitoring well

MW-8 was observed with a hydrocarbon sheen and odor during well development on July 13, 2012 and was not sampled.

Groundwater samples were collected via a downhole pneumatic pump utilizing a low flow purging and sampling method. Air flow into the pump was controlled by a GeoTech Micropurge control panel. Disposable Teflon-lined polypropylene tubing was used at each sampling point and sampling equipment was decontaminated after each use. Each monitoring well was purged and sampled at a rate of 300 milliliters/minute or less. Actual purging and sampling rates can be found in **Table 1**.

Prior to collection of water samples, field readings were taken at each well for pH, Conductivity, Dissolved Oxygen (D.O.), Temperature, Salinity, and Oxygen Redox Potential (ORP). During this sampling event, the pH ranged from 7.23 standard units (s.u.) at monitoring well MW-3 to 7.73 s.u. at monitoring well MW-4. Conductivity ranged from 589 micro-ohms per centimeter squared ($\mu\text{ohms}/\text{cm}^2$) at monitoring well MW-7 to 1,980 $\mu\text{ohms}/\text{cm}^2$ at monitoring well MW-2. D.O. ranged from 0.33 mg/L at monitoring well MW-6 to 3.68 mg/L at monitoring well MW-2. Temperature ranged from 19.25 °C at monitoring well MW-4 to 22.31 °C at monitoring well MW-6. Salinity ranged from 0.32 parts per thousand in monitoring well MW-7 to 1.10 parts per thousand in monitoring well MW-2. And ORP ranged from 33.8 milli-Volts (mV) in monitoring well MW-4 to 76.5 mV in monitoring well MW-3.

Groundwater laboratory analysis included analysis of BTEX tested under EPA Method No. 8260B, PAH analysis under EPA Method No. 8270C, Broad Spectrum Analysis of Total Petroleum Hydrocarbons Gasoline Range Organics [TPH-GRO (C6-C10)] (TPH-GRO) under EPA Method No. 8015, and Broad Spectrum Analysis of Total Petroleum Hydrocarbons Diesel Range Organics [TPH-DRO (C10-C28)] (TPH-DRO) under EPA Method No. 8015.

There were no BTEX, PAH, or TPH-GRO (C6-C10) detections in any of the wells sampled. However, all six wells sampled had detections of TPH-DRO. Monitoring well MW-1 had a TPH-DRO detection of 0.0469J mg/L. Monitoring well MW-2 had a TPH-DRO detection of 0.0526J mg/L. Monitoring well MW-3 had a TPH-DRO detection of 0.0553J mg/L. Monitoring well MW-4 had a TPH-DRO detection of 0.0469J mg/L. Monitoring well MW-6 had a TPH-DRO detection of 0.0770J mg/L. And monitoring well MW-7 had a TPH-DRO detection of 0.0381J mg/L. **Table 2** and **Figure 4** provides a summary of the groundwater analytical results. The laboratory analytical report is included in **Appendix A**.

5.0 CONCLUSIONS AND PROPOSALS

There were no BTEX, PAH, or TPH-GRO detections in any of the wells sampled. Although TPH-DRO detections were observed in each well sampled, the levels detected are well below the recommended action level, except at MW-8. Based on these results, Hess proposes that the site remain on a quarterly groundwater sampling and reporting

schedule beginning the 1st quarter of 2013. MW-8 is the most downgradient well and is showing a hydrocarbon seen. Therefore, a new well 50' southwest of MW-8 is being proposed, as shown on **Figure 2**.

Table 1
Groundwater Field Data Summary
Texaco Mattern Battery #26
August 22, 2012

Well No.	Casing Diameter (inches)	Date	Top of Casing to Water (feet)	Top of Casing Elevation (feet)	Groundwater Elevation (feet)	Top of Casing to Bottom of Well (feet)	Purge pumping Rate (ml/min)	Sampling pump Rate (ml/min)	Amount Purged (gal)	LPH Films Detected by Interface Probe During Well Development	Field Reading	pH s.u.	Conductivity μ ohms/cm ²	Dissolved Oxygen mg/L	Temperature °C	Salinity ppt	ORP (mv)
MW-1	2	8/22/2012	22.23	3,637.92	3,615.69	32.50	230	230	2	None None	Initial Reading Stabilized Reading	7.58 7.41	783 747	2.25 3.48	21.37 20.10	0.41 0.41	48.7 73.0
MW-2	2	8/22/2012	23.75	3,636.42	3,614.67	32.20	230	230	2	None None	Initial Reading Stabilized Reading	7.41 7.29	1,967 1,980	0.25 0.39	21.50 21.00	1.08 1.10	50.8 59.1
MW-3	2	8/22/2012	22.57	3,635.90	3,613.33	30.20	250	250	3	None None	Initial Reading Stabilized Reading	7.23 7.23	1,132 1,113	14.90 INOP	22.11 21.26	0.60 0.60	55.1 78.5
MW-4	2	8/22/2012	20.51	3,634.51	3,614.00	30.90	240	240	2	None None	Initial Reading Stabilized Reading	7.86 7.73	636 620	0.75 1.38	19.70 19.25	0.35 0.34	21.2 33.8
MW-5	2	—	P&A	—	P&A	—	—	—	—	— —	Initial Reading Stabilized Reading	— —	— —	— —	— —	— —	— —
MW-6	2	8/22/2012	22.80	3,639.36	3,618.56	28.71	210	210	2	None None	Initial Reading Stabilized Reading	7.52 7.42	1,555 1,462	0.31 0.33	24.03 22.31	0.80 0.78	44.1 60.6
MW-7	2	8/22/2012	20.50	3,634.96	3,614.46	33.80	260	260	2	None None	Initial Reading Stabilized Reading	7.62 7.59	600 589	3.02 3.68	19.77 19.45	0.33 0.32	48.0 50.1
MW-8	2	7/13/2012	24.64	3,633.89	3,609.25	37.50	—	—	—	Shoen in Well Well Not Sampled	Initial Reading Stabilized Reading	— —	— —	— —	— —	— —	— —

NOTE:
LPH = liquid phase hydrocarbon
ml/min = milliliters per minute
gals = gallons
s.u. = standard unit
 μ ohms/cm² = micro-ohms per centimeter squared
mg/L = milligrams per liter
°C = degrees Celsius
mv = millivolts
— = reading not taken or not applicable

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Table 2
Summary of Groundwater Monitoring Results
Texaco Mattern Battery #26
August 22, 2012

	Units	MW-1	MW-2	MW-3	MW-4	MW-6	MW-7	NM WQCC Standards
Date Sampled		8/22/2012	8/22/2012	8/22/2012	8/22/2012	8/22/2012	8/22/2012	
BTEX (Method 8260B)								
Benzene	µg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	5
Toluene	µg/L	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	750
Ethylbenzene	µg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	750
Xylenes	µg/L	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	620
PAHs (Method 8270C)								
Acenaphthene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	NONE
Acenaphthylene	µg/L	<0.072	<0.072	<0.072	<0.072	<0.072	<0.072	NONE
Anthracene	µg/L	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	NONE
Benzo(a)anthracene	µg/L	<0.042	<0.042	<0.042	<0.042	<0.042	<0.042	NONE
Benzo(a)pyrene	µg/L	<0.065	<0.065	<0.065	<0.065	<0.065	<0.065	0.7
Benzo(b)fluoranthene	µg/L	<0.061	<0.061	<0.061	<0.061	<0.061	<0.061	NONE
Benzo(g,h,i)perylene	µg/L	<0.068	<0.068	<0.068	<0.068	<0.068	<0.068	NONE
Benzo(k)fluoranthene	µg/L	<0.056	<0.056	<0.056	<0.056	<0.056	<0.056	NONE
Chrysene	µg/L	<0.045	<0.045	<0.045	<0.045	<0.045	<0.045	NONE
Dibenzo(a,h)anthracene	µg/L	<0.060	<0.060	<0.060	<0.060	<0.060	<0.060	NONE
Fluoranthene	µg/L	<0.046	<0.046	<0.046	<0.046	<0.046	<0.046	NONE
Fluorene	µg/L	<0.065	<0.065	<0.065	<0.065	<0.065	<0.065	NONE
Indeno(1,2,3-cd)pyrene	µg/L	<0.061	<0.061	<0.061	<0.061	<0.061	<0.061	NONE
2-Methylnaphthalene	µg/L	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	NONE
Naphthalene	µg/L	<0.076	<0.076	<0.076	<0.076	<0.076	<0.076	NONE
Phenanthrene	µg/L	<0.076	<0.076	<0.076	<0.076	<0.076	<0.076	NONE
Pyrene	µg/L	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	NONE
TPH (Method 8015)								
TPH-GRO (C6-C10)	mg/L	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	NONE
TPH-DRO (C10-C28)	mg/L	0.0469J	0.0526J	0.0553J	0.0553J	0.0770J	0.0381J	NONE

NOTE:

NM WQCC = New Mexico Water Quality Control Commission

µg/L = micrograms per Liter

mg/L = milligrams per Liter

J = Indicates an estimated value

NONE = no NM WQCC Standard for this constituent

Table 3
Well Development Data
Texaco Mattern Battery #26
July 13-16, 2012

Well No.	Date	Top of Casing to Water (feet)	Top of Casing Elevation (feet)	Groundwater Elevation (feet)	Top of Casing to Bottom of Well (feet)	Top of Casing to LPH (feet)	LPH Thickness (feet)	Amount Purged (gallons)
MW-1	7/16/2012	22.13	3,637.92	3,615.79	32.50	--	0	8
MW-2	7/16/2012	23.60	3,638.42	3,614.82	32.20	--	0	14
MW-3	7/16/2012	22.45	3,635.90	3,613.45	30.20	--	0	10
MW-4	7/16/2012	20.40	3,634.51	3,614.11	30.90	--	0	13
MW-5	--	P&A	--	P&A	--	--	0	--
MW-6	7/16/2012	22.70	3,639.36	3,616.66	28.71	--	0	13
MW-7	7/16/2012	20.50	3,634.96	3,614.46	33.80	--	0	12
MW-8	7/13/2012	24.64	3,633.89	3,609.25	37.50	Sheen	0	7

NOTE:

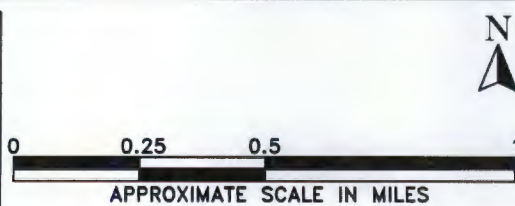
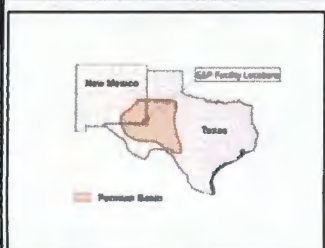
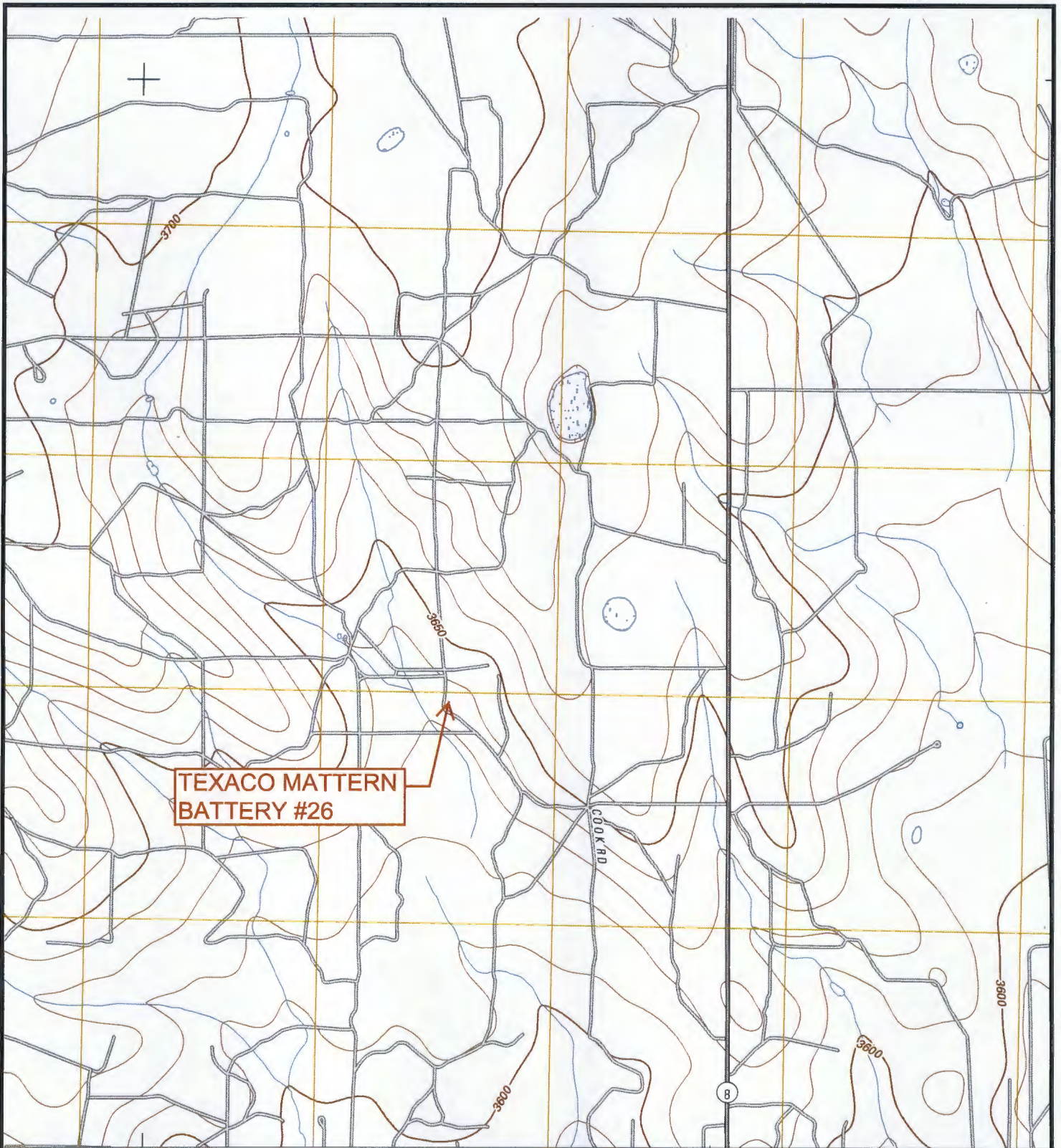
LPH = liquid phase hydrocarbon

-- = not applicable or not taken

P&A = well plugged and abandoned

Sheen = hydrocarbon sheen present in well during development

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FIGURE 1
REGIONAL LOCATION MAP
TEXACO MATTERN BATTERY #26
LEA COUNTY, NEW MEXICO

DRAWN BY:
JFLAKE

DATE:
12-12-12

PRD. NO.
HESS

MAP SOURCE: USGS TOPOGRAPHIC MAP (VERSION 2010) - MONUMENT SOUTH QUADRANGLE



LEGEND

- ◆ MONITORING WELL LOCATION
- ◆ PROPOSED ADDITIONAL MONITORING WELL LOCATION
- ▨ EXCAVATED AREA



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FIGURE 2
MONITORING WELL LOCATION MAP
TEXACO MATTERN BATTERY #26
HESS E&P - NEW MEXICO

DRAWN BY:
JFLAKE

DATE:
12-12-12

PROJ. NO.
HESS



Gulf Coast

ACCUTEST
LABORATORIES

10/01/12

Technical Report for

Geo Monitoring Services

Texaco Mattern Battery 26

Accutest Job Number: TC15187

Sampling Date: 08/22/12


Report to:

james@geomon.net

Total number of pages in report: 50



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.


Richard Rodriguez
Laboratory Director

Client Service contact: Sylvia Garza 713-271-4700

Certifications: TX (T104704220-12-8) AR (11-028-0) AZ (AZ0769) FL (E87628) KS (E-10366)
LA (85695/04004) OK (211-035)

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Test results relate only to samples analyzed.

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Sample Summary

Geo Monitoring Services

Job No: TC15187

Texaco Mattern Battery 26

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
TC15187-1	08/22/12	11:41	08/24/12	AQ	Ground Water	MW-1
TC15187-2	08/22/12	10:59	08/24/12	AQ	Ground Water	MW-2
TC15187-3	08/22/12	14:29	08/24/12	AQ	Ground Water	MW-3
TC15187-4	08/22/12	09:22	08/24/12	AQ	Ground Water	MW-4
TC15187-5	08/22/12	13:31	08/24/12	AQ	Ground Water	MW-6
TC15187-6	08/22/12	10:03	08/24/12	AQ	Ground Water	MW-7

Summary of Hits

Page 1 of 1

Job Number: TC15187
Account: Geo Monitoring Services
Project: Texaco Mattern Battery 26
Collected: 08/22/12

2

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC15187-1	MW-1					
TPH (C10-C28)		0.0469 J	0.10	0.031	mg/l	SW846 8015 M
TC15187-2	MW-2					
TPH (C10-C28)		0.0526 J	0.10	0.031	mg/l	SW846 8015 M
TC15187-3	MW-3					
TPH (C10-C28)		0.0553 J	0.10	0.031	mg/l	SW846 8015 M
TC15187-4	MW-4					
TPH (C10-C28)		0.0553 J	0.10	0.031	mg/l	SW846 8015 M
TC15187-5	MW-6					
TPH (C10-C28)		0.0770 J	0.10	0.031	mg/l	SW846 8015 M
TC15187-6	MW-7					
TPH (C10-C28)		0.0381 J	0.10	0.031	mg/l	SW846 8015 M



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Sample Results

Report of Analysis

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-1	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-1	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z028442.D	1	08/28/12	EM	n/a	n/a	VZ3736
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2	Benzene	0.00025 U	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.00026 U	0.0010	0.00026	mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		79-122%
17060-07-0	1,2-Dichloroethane-D4	88%		75-121%
2037-26-5	Toluene-D8	99%		87-119%
460-00-4	4-Bromofluorobenzene	113%		80-133%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-1	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-1	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V12410.D	1	08/30/12	GJ	08/28/12	OP24900	EV694
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	MQL	SDL	Units	Q
83-32-9	Acenaphthene	0.000042 U	0.00020	0.000042	mg/l	
208-96-8	Acenaphthylene	0.000072 U	0.00020	0.000072	mg/l	
120-12-7	Anthracene	0.000054 U	0.00020	0.000054	mg/l	
56-55-3	Benzo(a)anthracene	0.000042 U	0.00020	0.000042	mg/l	
50-32-8	Benzo(a)pyrene	0.000065 U	0.00020	0.000065	mg/l	
205-99-2	Benzo(b)fluoranthene	0.000061 U	0.00020	0.000061	mg/l	
191-24-2	Benzo(g,h,i)perylene	0.000068 U	0.00020	0.000068	mg/l	
207-08-9	Benzo(k)fluoranthene	0.000056 U	0.00020	0.000056	mg/l	
218-01-9	Chrysene	0.000045 U	0.00020	0.000045	mg/l	
53-70-3	Dibenzo(a,h)anthracene	0.000060 U	0.00020	0.000060	mg/l	
206-44-0	Fluoranthene	0.000046 U	0.00020	0.000046	mg/l	
86-73-7	Fluorene	0.000065 U	0.00020	0.000065	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.000061 U	0.00020	0.000061	mg/l	
91-57-6	2-Methylnaphthalene	0.00012 U	0.00020	0.00012	mg/l	
91-20-3	Naphthalene	0.000076 U	0.00020	0.000076	mg/l	
85-01-8	Phenanthrene	0.000076 U	0.00020	0.000076	mg/l	
129-00-0	Pyrene	0.000080 U	0.00020	0.000080	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	85%		17-131%
321-60-8	2-Fluorobiphenyl	84%		15-137%
1718-51-0	Terphenyl-d14	102%		10-160%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-1	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-1	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH0011616.D	1	08/31/12	LT	n/a	n/a	GHH630
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH-GRO (C6-C10)	0.012 U	0.050	0.012	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	81%		52-127%
98-08-8	aaa-Trifluorotoluene	91%		58-141%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-1	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-1	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015 M SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC227593.D	1	08/30/12	FO	08/29/12	OP24916	GCC1393
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH (C10-C28)	0.0469	0.10	0.031	mg/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	95%		37-135%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-2	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-2	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z028443.D	1	08/28/12	EM	n/a	n/a	VZ3736
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2	Benzene	0.00025 U	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.00026 U	0.0010	0.00026	mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		79-122%
17060-07-0	1,2-Dichloroethane-D4	83%		75-121%
2037-26-5	Toluene-D8	97%		87-119%
460-00-4	4-Bromofluorobenzene	106%		80-133%

U = Not detected SDL - Sample Detection Limit
 MQL = Method Quantitation Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-2	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-2	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V12411.D	1	08/30/12	GJ	08/28/12	OP24900	EV694
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	MQL	SDL	Units	Q
83-32-9	Acenaphthene	0.000042 U	0.00020	0.000042	mg/l	
208-96-8	Acenaphthylene	0.000072 U	0.00020	0.000072	mg/l	
120-12-7	Anthracene	0.000054 U	0.00020	0.000054	mg/l	
56-55-3	Benzo(a)anthracene	0.000042 U	0.00020	0.000042	mg/l	
50-32-8	Benzo(a)pyrene	0.000065 U	0.00020	0.000065	mg/l	
205-99-2	Benzo(b)fluoranthene	0.000061 U	0.00020	0.000061	mg/l	
191-24-2	Benzo(g,h,i)perylene	0.000068 U	0.00020	0.000068	mg/l	
207-08-9	Benzo(k)fluoranthene	0.000056 U	0.00020	0.000056	mg/l	
218-01-9	Chrysene	0.000045 U	0.00020	0.000045	mg/l	
53-70-3	Dibenzo(a,h)anthracene	0.000060 U	0.00020	0.000060	mg/l	
206-44-0	Fluoranthene	0.000046 U	0.00020	0.000046	mg/l	
86-73-7	Fluorene	0.000065 U	0.00020	0.000065	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.000061 U	0.00020	0.000061	mg/l	
91-57-6	2-Methylnaphthalene	0.00012 U	0.00020	0.00012	mg/l	
91-20-3	Naphthalene	0.000076 U	0.00020	0.000076	mg/l	
85-01-8	Phenanthrene	0.000076 U	0.00020	0.000076	mg/l	
129-00-0	Pyrene	0.000080 U	0.00020	0.000080	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	74%		17-131%
321-60-8	2-Fluorobiphenyl	76%		15-137%
1718-51-0	Terphenyl-d14	95%		10-160%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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3.2

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Client Sample ID:	MW-2	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-2	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH0011619.D	1	08/31/12	LT	n/a	n/a	GHH630
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH-GRO (C6-C10)	0.012 U	0.050	0.012	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	82%		52-127%		
98-08-8	aaa-Trifluorotoluene	88%		58-141%		

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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3.2

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Client Sample ID:	MW-2	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-2	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015 M SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC227594.D	1	08/30/12	FO	08/29/12	OP24916	GCC1393
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH (C10-C28)	0.0526	0.10	0.031	mg/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	82%		37-135%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-3	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z028444.D	1	08/28/12	EM	n/a	n/a	VZ3736
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2	Benzene	0.00025 U	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.00026 U	0.0010	0.00026	mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		79-122%
17060-07-0	1,2-Dichloroethane-D4	87%		75-121%
2037-26-5	Toluene-D8	93%		87-119%
460-00-4	4-Bromofluorobenzene	113%		80-133%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-3	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-3	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V12412.D	1	08/30/12	GJ	08/28/12	OP24900	EV694
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	MQL	SDL	Units	Q
83-32-9	Acenaphthene	0.000042 U	0.00020	0.000042	mg/l	
208-96-8	Acenaphthylene	0.000072 U	0.00020	0.000072	mg/l	
120-12-7	Anthracene	0.000054 U	0.00020	0.000054	mg/l	
56-55-3	Benzo(a)anthracene	0.000042 U	0.00020	0.000042	mg/l	
50-32-8	Benzo(a)pyrene	0.000065 U	0.00020	0.000065	mg/l	
205-99-2	Benzo(b)fluoranthene	0.000061 U	0.00020	0.000061	mg/l	
191-24-2	Benzo(g,h,i)perylene	0.000068 U	0.00020	0.000068	mg/l	
207-08-9	Benzo(k)fluoranthene	0.000056 U	0.00020	0.000056	mg/l	
218-01-9	Chrysene	0.000045 U	0.00020	0.000045	mg/l	
53-70-3	Dibenzo(a,h)anthracene	0.000060 U	0.00020	0.000060	mg/l	
206-44-0	Fluoranthene	0.000046 U	0.00020	0.000046	mg/l	
86-73-7	Fluorene	0.000065 U	0.00020	0.000065	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.000061 U	0.00020	0.000061	mg/l	
91-57-6	2-Methylnaphthalene	0.00012 U	0.00020	0.00012	mg/l	
91-20-3	Naphthalene	0.000076 U	0.00020	0.000076	mg/l	
85-01-8	Phenanthrene	0.000076 U	0.00020	0.000076	mg/l	
129-00-0	Pyrene	0.000080 U	0.00020	0.000080	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	91%		17-131%
321-60-8	2-Fluorobiphenyl	91%		15-137%
1718-51-0	Terphenyl-d14	110%		10-160%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-3	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-3	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH0011620.D	1	08/31/12	LT	n/a	n/a	GHH630
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH-GRO (C6-C10)	0.012 U	0.050	0.012	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	81%		52-127%		
98-08-8	aaa-Trifluorotoluene	92%		58-141%		

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-3	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-3	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015 M SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC227595.D	1	08/30/12	FO	08/29/12	OP24916	GCC1393
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH (C10-C28)	0.0553	0.10	0.031	mg/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		37-135%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-4	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-4	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z028445.D	1	08/28/12	EM	n/a	n/a	VZ3736
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2	Benzene	0.00025 U	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.00026 U	0.0010	0.00026	mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		79-122%
17060-07-0	1,2-Dichloroethane-D4	91%		75-121%
2037-26-5	Toluene-D8	100%		87-119%
460-00-4	4-Bromofluorobenzene	114%		80-133%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-4	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-4	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V12413.D	1	08/30/12	GJ	08/28/12	OP24900	EV694
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	MQL	SDL	Units	Q
83-32-9	Acenaphthene	0.000042 U	0.00020	0.000042	mg/l	
208-96-8	Acenaphthylene	0.000072 U	0.00020	0.000072	mg/l	
120-12-7	Anthracene	0.000054 U	0.00020	0.000054	mg/l	
56-55-3	Benzo(a)anthracene	0.000042 U	0.00020	0.000042	mg/l	
50-32-8	Benzo(a)pyrene	0.000065 U	0.00020	0.000065	mg/l	
205-99-2	Benzo(b)fluoranthene	0.000061 U	0.00020	0.000061	mg/l	
191-24-2	Benzo(g,h,i)perylene	0.000068 U	0.00020	0.000068	mg/l	
207-08-9	Benzo(k)fluoranthene	0.000056 U	0.00020	0.000056	mg/l	
218-01-9	Chrysene	0.000045 U	0.00020	0.000045	mg/l	
53-70-3	Dibenzo(a,h)anthracene	0.000060 U	0.00020	0.000060	mg/l	
206-44-0	Fluoranthene	0.000046 U	0.00020	0.000046	mg/l	
86-73-7	Fluorene	0.000065 U	0.00020	0.000065	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.000061 U	0.00020	0.000061	mg/l	
91-57-6	2-Methylnaphthalene	0.00012 U	0.00020	0.00012	mg/l	
91-20-3	Naphthalene	0.000076 U	0.00020	0.000076	mg/l	
85-01-8	Phenanthrene	0.000076 U	0.00020	0.000076	mg/l	
129-00-0	Pyrene	0.000080 U	0.00020	0.000080	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	62%		17-131%
321-60-8	2-Fluorobiphenyl	64%		15-137%
1718-51-0	Terphenyl-d14	78%		10-160%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-4	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-4	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH0011623.D	1	08/31/12	LT	n/a	n/a	GHH630
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH-GRO (C6-C10)	0.012 U	0.050	0.012	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	83%		52-127%		
98-08-8	aaa-Trifluorotoluene	94%		58-141%		

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-4	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-4	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015 M SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC227600.D	1	08/30/12	FO	08/29/12	OP24916	GCC1393
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH (C10-C28)	0.0553	0.10	0.031	mg/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		37-135%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-5	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z028446.D	1	08/28/12	EM	n/a	n/a	VZ3736
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2	Benzene	0.00025 U	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.00026 U	0.0010	0.00026	mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		79-122%
17060-07-0	1,2-Dichloroethane-D4	89%		75-121%
2037-26-5	Toluene-D8	97%		87-119%
460-00-4	4-Bromofluorobenzene	114%		80-133%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID: MW-6	Date Sampled: 08/22/12
Lab Sample ID: TC15187-5	Date Received: 08/24/12
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270C BY SIM SW846 3510C	
Project: Texaco Mattern Battery 26	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V12414.D	1	08/30/12	GJ	08/28/12	OP24900	EV694
Run #2							

Run #	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	MQL	SDL	Units	Q
83-32-9	Acenaphthene	0.000042 U	0.00020	0.000042	mg/l	
208-96-8	Acenaphthylene	0.000072 U	0.00020	0.000072	mg/l	
120-12-7	Anthracene	0.000054 U	0.00020	0.000054	mg/l	
56-55-3	Benzo(a)anthracene	0.000042 U	0.00020	0.000042	mg/l	
50-32-8	Benzo(a)pyrene	0.000065 U	0.00020	0.000065	mg/l	
205-99-2	Benzo(b)fluoranthene	0.000061 U	0.00020	0.000061	mg/l	
191-24-2	Benzo(g,h,i)perylene	0.000068 U	0.00020	0.000068	mg/l	
207-08-9	Benzo(k)fluoranthene	0.000056 U	0.00020	0.000056	mg/l	
218-01-9	Chrysene	0.000045 U	0.00020	0.000045	mg/l	
53-70-3	Dibenzo(a,h)anthracene	0.000060 U	0.00020	0.000060	mg/l	
206-44-0	Fluoranthene	0.000046 U	0.00020	0.000046	mg/l	
86-73-7	Fluorene	0.000065 U	0.00020	0.000065	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.000061 U	0.00020	0.000061	mg/l	
91-57-6	2-Methylnaphthalene	0.00012 U	0.00020	0.00012	mg/l	
91-20-3	Naphthalene	0.000076 U	0.00020	0.000076	mg/l	
85-01-8	Phenanthrene	0.000076 U	0.00020	0.000076	mg/l	
129-00-0	Pyrene	0.000080 U	0.00020	0.000080	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		17-131%
321-60-8	2-Fluorobiphenyl	68%		15-137%
1718-51-0	Terphenyl-d14	88%		10-160%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID: MW-6	Date Sampled: 08/22/12
Lab Sample ID: TC15187-5	Date Received: 08/24/12
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8015	
Project: Texaco Mattern Battery 26	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH0011624.D	1	08/31/12	LT	n/a	n/a	GHH630
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH-GRO (C6-C10)	0.012 U	0.050	0.012	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	78%		52-127%		
98-08-8	aaa-Trifluorotoluene	88%		58-141%		

U = Not detected SDL - Sample Detection Limit
 MQL = Method Quantitation Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

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3.5



Client Sample ID: MW-6	
Lab Sample ID: TC15187-5	Date Sampled: 08/22/12
Matrix: AQ - Ground Water	Date Received: 08/24/12
Method: SW846 8015 M SW846 3510C	Percent Solids: n/a
Project: Texaco Mattern Battery 26	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC227601.D	1	08/31/12	FO	08/29/12	OP24916	GCC1393
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH (C10-C28)	0.0770	0.10	0.031	mg/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		37-135%

U = Not detected SDL - Sample Detection Limit
 MQL = Method Quantitation Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-7
Lab Sample ID: TC15187-6
Matrix: AQ - Ground Water
Method: SW846 8260B
Project: Texaco Mattern Battery 26

Date Sampled: 08/22/12
Date Received: 08/24/12
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z028447.D	1	08/28/12	EM	n/a	n/a	VZ3736
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics

CAS No.	Compound	Result	MQL	SDL	Units	Q
71-43-2	Benzene	0.00025 U	0.0010	0.00025	mg/l	
108-88-3	Toluene	0.00026 U	0.0010	0.00026	mg/l	
100-41-4	Ethylbenzene	0.00025 U	0.0010	0.00025	mg/l	
1330-20-7	Xylene (total)	0.00071 U	0.0030	0.00071	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		79-122%
17060-07-0	1,2-Dichloroethane-D4	88%		75-121%
2037-26-5	Toluene-D8	98%		87-119%
460-00-4	4-Bromofluorobenzene	114%		80-133%

U = Not detected SDL - Sample Detection Limit
 MQL = Method Quantitation Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-7	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-6	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	V12415.D	1	08/30/12	GJ	08/28/12	OP24900	EV694
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	MQL	SDL	Units	Q
83-32-9	Acenaphthene	0.000042 U	0.00020	0.000042	mg/l	
208-96-8	Acenaphthylene	0.000072 U	0.00020	0.000072	mg/l	
120-12-7	Anthracene	0.000054 U	0.00020	0.000054	mg/l	
56-55-3	Benzo(a)anthracene	0.000042 U	0.00020	0.000042	mg/l	
50-32-8	Benzo(a)pyrene	0.000065 U	0.00020	0.000065	mg/l	
205-99-2	Benzo(b)fluoranthene	0.000061 U	0.00020	0.000061	mg/l	
191-24-2	Benzo(g,h,i)perylene	0.000068 U	0.00020	0.000068	mg/l	
207-08-9	Benzo(k)fluoranthene	0.000056 U	0.00020	0.000056	mg/l	
218-01-9	Chrysene	0.000045 U	0.00020	0.000045	mg/l	
53-70-3	Dibenzo(a,h)anthracene	0.000060 U	0.00020	0.000060	mg/l	
206-44-0	Fluoranthene	0.000046 U	0.00020	0.000046	mg/l	
86-73-7	Fluorene	0.000065 U	0.00020	0.000065	mg/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.000061 U	0.00020	0.000061	mg/l	
91-57-6	2-Methylnaphthalene	0.00012 U	0.00020	0.00012	mg/l	
91-20-3	Naphthalene	0.000076 U	0.00020	0.000076	mg/l	
85-01-8	Phenanthrene	0.000076 U	0.00020	0.000076	mg/l	
129-00-0	Pyrene	0.000080 U	0.00020	0.000080	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		17-131%
321-60-8	2-Fluorobiphenyl	79%		15-137%
1718-51-0	Terphenyl-d14	100%		10-160%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-7	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-6	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH0011625.D	1	08/31/12	LT	n/a	n/a	GHH630
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH-GRO (C6-C10)	0.012 U	0.050	0.012	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	77%		52-127%
98-08-8	aaa-Trifluorotoluene	87%		58-141%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

Client Sample ID:	MW-7	Date Sampled:	08/22/12
Lab Sample ID:	TC15187-6	Date Received:	08/24/12
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8015 M SW846 3510C		
Project:	Texaco Mattern Battery 26		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	CC227602.D	1	08/31/12	FO	08/29/12	OP24916	GCC1393
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	MQL	SDL	Units	Q
	TPH (C10-C28)	0.0381	0.10	0.031	mg/l	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		37-135%

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound



Gulf Coast
ACCUTEST
LABORATORIES

4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Job Number: TC15187 Client: GEO MONITORING SERVICES Project: TEXACO MATTERN BATTERY 26
 Date / Time Received: 8/24/2012 Delivery Method: Airbill #'s: 535599231881/535599231907/535599231892
 No. Coolers: 3 Therm ID: IRGUN5; Temp Adjustment Factor: -0.4;
 Cooler Temps (Initial/Adjusted): #1: (3.7/3.3); #2: (3.1/2.7); #3: (2.6/2.2);

Cooler Security Y or N Y or N
 1. Custody Seals Present: ☒ ☐ 3. COC Present: ☒ ☐
 2. Custody Seals Intact: ☒ ☐ 4. Smpl Dates/Time OK ☒ ☐

Cooler Temperature Y or N
 1. Temp criteria achieved: ☒ ☐
 2. Cooler temp verification: _____
 3. Cooler media: Ice (Bag)

Quality Control Preservation Y or N N/A WTB STB
 1. Trip Blank present / cooler: ☐ ☒ ☐ ☐ ☐
 2. Trip Blank listed on COC: ☐ ☒ ☐
 3. Samples preserved properly: ☒ ☐ ☐
 4. VOCs headspace free: ☒ ☐ ☐

Sample Integrity - Documentation Y or N
 1. Sample labels present on bottles: ☒ ☐
 2. Container labeling complete: ☒ ☐
 3. Sample container label / COC agree: ☒ ☐

Sample Integrity - Condition Y or N
 1. Sample recvd within HT: ☒ ☐
 2. All containers accounted for: ☐ ☒
 3. Condition of sample: Intact

Sample Integrity - Instructions Y or N N/A
 1. Analysis requested is clear: ☒ ☐
 2. Bottles received for unspecified tests: ☐ ☒
 3. Sufficient volume recvd for analysis: ☒ ☐
 4. Compositing instructions clear: ☐ ☐ ☒
 5. Filtering instructions clear: ☐ ☐ ☒

Comments -did not received trip blank listed on coc.



Problem Resolution

Page 2 of 5

Accutest Job Number: TC15187

CSR: _____

Response Date: _____

Response:

4.1
4

TC15187: Chain of Custody
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Job #: TC15187

Date / Time Received: 8/24/2012 9:22:00 AM

Initials: CH

Client: GEO MONITORING SERVICES

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
2	TC15187-1	LAG	1	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	LAG	2	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	LAG	3	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	LAG	4	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-1	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
1	TC15187-2	LAG	1	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	LAG	2	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	LAG	3	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	LAG	4	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-2	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
2	TC15187-3	LAG	1	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	LAG	2	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	LAG	3	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7

TC15187: Chain of Custody
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Sample Receipt Log

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Job #: TC15187

Date / Time Received: 8/24/2012 9:22:00 AM

Initials: CH

Client: GEO MONITORING SERVICES

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
2	TC15187-3	LAG	4	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
2	TC15187-3	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.1	-0.4	2.7
3	TC15187-4	LAG	1	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	LAG	2	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	LAG	3	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	LAG	4	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-4	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
1	TC15187-5	LAG	1	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	LAG	2	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	LAG	3	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	LAG	4	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3

TC15187: Chain of Custody

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Sample Receipt Log

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Job #: TC15187

Date / Time Received: 8/24/2012 9:22:00 AM

Initials: CH

Client: GEO MONITORING SERVICES

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	TC15187-5	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
1	TC15187-5	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	3.7	-0.4	3.3
3	TC15187-6	LAG	1	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	LAG	2	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	LAG	3	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	LAG	4	4B	N/P	Note #2 - Preservative check not applicable.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	40ml	5	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	40ml	6	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	40ml	7	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	40ml	8	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	40ml	9	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2
3	TC15187-6	40ml	10	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IRGUN5	2.6	-0.4	2.2

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TC15187: Chain of Custody

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GC/MS Volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

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Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ3736-MB	Z028428.D	1	08/28/12	EM	n/a	n/a	VZ3736

The QC reported here applies to the following samples:

Method: SW846 8260B

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.25	ug/l	
108-88-3	Toluene	ND	1.0	0.26	ug/l	
1330-20-7	Xylene (total)	ND	3.0	0.71	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	99% 79-122%
17060-07-0	1,2-Dichloroethane-D4	88% 75-121%
2037-26-5	Toluene-D8	101% 87-119%
460-00-4	4-Bromofluorobenzene	112% 80-133%

Blank Spike Summary

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Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VZ3736-BS	Z028426.D	1	08/28/12	EM	n/a	n/a	VZ3736

The QC reported here applies to the following samples:

Method: SW846 8260B

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	25	24.5	98	76-118
100-41-4	Ethylbenzene	25	24.3	97	75-112
108-88-3	Toluene	25	24.4	98	77-114
1330-20-7	Xylene (total)	75	73.2	98	75-111

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	104%	79-122%
17060-07-0	1,2-Dichloroethane-D4	93%	75-121%
2037-26-5	Toluene-D8	106%	87-119%
460-00-4	4-Bromofluorobenzene	114%	80-133%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC15248-1MS	Z028431.D	1	08/28/12	EM	n/a	n/a	VZ3736
TC15248-1MSD	Z028432.D	1	08/28/12	EM	n/a	n/a	VZ3736
TC15248-1	Z028430.D	1	08/28/12	EM	n/a	n/a	VZ3736

The QC reported here applies to the following samples:

Method: SW846 8260B

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	TC15248-1 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1.0 U	25	26.7	107	26.3	105	2	76-118/16
100-41-4	Ethylbenzene	1.0 U	25	25.8	103	25.1	100	3	75-112/12
108-88-3	Toluene	1.0 U	25	24.3	97	24.1	96	1	77-114/12
1330-20-7	Xylene (total)	3.0 U	75	78.9	105	79.5	106	1	75-111/12

CAS No.	Surrogate Recoveries	MS	MSD	TC15248-1	Limits
1868-53-7	Dibromofluoromethane	104%	105%	99%	79-122%
17060-07-0	1,2-Dichloroethane-D4	92%	90%	88%	75-121%
2037-26-5	Toluene-D8	99%	99%	99%	87-119%
460-00-4	4-Bromofluorobenzene	113%	113%	109%	80-133%

* = Outside of Control Limits.



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GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

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Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP24900-MB	V12402.D	1	08/30/12	GJ	08/28/12	OP24900	EV694

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.20	0.042	ug/l	
208-96-8	Acenaphthylene	ND	0.20	0.072	ug/l	
120-12-7	Anthracene	ND	0.20	0.054	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.20	0.041	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.20	0.064	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.20	0.060	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.20	0.068	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.20	0.056	ug/l	
218-01-9	Chrysene	ND	0.20	0.044	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.20	0.060	ug/l	
206-44-0	Fluoranthene	ND	0.20	0.046	ug/l	
86-73-7	Fluorene	ND	0.20	0.064	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.20	0.061	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.20	0.12	ug/l	
91-20-3	Naphthalene	ND	0.20	0.075	ug/l	
85-01-8	Phenanthrene	ND	0.20	0.075	ug/l	
129-00-0	Pyrene	ND	0.20	0.079	ug/l	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	83% 17-131%
321-60-8	2-Fluorobiphenyl	83% 15-137%
1718-51-0	Terphenyl-d14	100% 10-160%

Blank Spike/Blank Spike Duplicate Summary

Page 1 of 1

Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP24900-BS	V12403.D	1	08/30/12	GJ	08/28/12	OP24900	EV694
OP24900-BSD ^a	V12404.D	1	08/30/12	GJ	08/28/12	OP24900	EV694

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	5	4.1	82	4.6	92	11	10-125/30
208-96-8	Acenaphthylene	5	4.4	88	4.8	96	9	10-141/30
120-12-7	Anthracene	5	4.5	90	4.9	98	9	13-139/30
56-55-3	Benzo(a)anthracene	5	4.6	92	5.0	100	8	24-151/30
50-32-8	Benzo(a)pyrene	5	4.6	92	5.0	100	8	36-146/30
205-99-2	Benzo(b)fluoranthene	5	4.8	96	5.3	106	10	27-159/30
191-24-2	Benzo(g,h,i)perylene	5	4.7	94	4.4	88	7	21-156/30
207-08-9	Benzo(k)fluoranthene	5	4.3	86	4.9	98	13	26-157/30
218-01-9	Chrysene	5	4.7	94	5.2	104	10	26-146/30
53-70-3	Dibenzo(a,h)anthracene	5	4.8	96	4.5	90	6	23-161/30
206-44-0	Fluoranthene	5	4.5	90	5.1	102	13	20-140/30
86-73-7	Fluorene	5	4.3	86	5.0	100	15	16-126/30
193-39-5	Indeno(1,2,3-cd)pyrene	5	5.1	102	4.9	98	4	25-153/30
91-57-6	2-Methylnaphthalene	5	4.0	80	4.4	88	10	10-115/30
91-20-3	Naphthalene	5	4.2	84	4.5	90	7	11-111/30
85-01-8	Phenanthrene	5	4.2	84	4.7	94	11	23-135/30
129-00-0	Pyrene	5	4.9	98	5.5	110	12	27-138/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	80%	92%	17-131%
321-60-8	2-Fluorobiphenyl	82%	93%	15-137%
1718-51-0	Terphenyl-d14	100%	115%	10-160%

(a) Insufficient sample for MS/MSD.

* = Outside of Control Limits.



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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: TC15187
Account: GMSTXFU Geo Monitoring Services
Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GHH630-MB	HH0011613.D		08/31/12	LT	n/a	n/a	GHH630

The QC reported here applies to the following samples:

Method: OA-1

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.10	0.012	mg/l	

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	80% 52-127%
98-08-8	aaa-Trifluorotoluene	86% 58-141%

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Blank Spike Summary

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Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GHH630-BS	HH0011611.D		08/31/12	LT	n/a	n/a	GHH630

The QC reported here applies to the following samples:

Method: OA-1

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	0.4	0.435	109	73-122

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	94%	52-127%
98-08-8	aaa-Trifluorotoluene	98%	58-141%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
TC15187-1MS	HH0011617.D		08/31/12	LT	n/a	n/a	GHH630
TC15187-1MSD	HH0011618.D		08/31/12	LT	n/a	n/a	GHH630
TC15187-1	HH0011616.D		08/31/12	LT	n/a	n/a	GHH630

The QC reported here applies to the following samples:

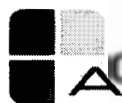
Method: SW846 8015

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	TC15187-1 mg/l	Spike Q	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	0.050 U	0.4	0.438	110	0.422	106	4	73-122/15

CAS No.	Surrogate Recoveries	MS	MSD	TC15187-1	Limits
460-00-4	4-Bromofluorobenzene	92%	91%	81%	52-127%
98-08-8	aaa-Trifluorotoluene	97%	93%	91%	58-141%

* = Outside of Control Limits.



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QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Page 1 of 1

Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP24916-MB	CC227568.D 1		08/30/12	FO	08/28/12	OP24916	GCC1393

The QC reported here applies to the following samples:

Method: SW846 8015 M

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	0.10	0.023	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	85% 25-112%

8.1.1

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Blank Spike/Blank Spike Duplicate Summary

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Job Number: TC15187

Account: GMSTXFU Geo Monitoring Services

Project: Texaco Mattern Battery 26

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP24916-BS	CC227566.D 1		08/30/12	FO	08/28/12	OP24916	GCC1393
OP24916-BSD ^a	CC227567.D 1		08/30/12	FO	08/28/12	OP24916	GCC1393

The QC reported here applies to the following samples:

Method: SW846 8015 M

TC15187-1, TC15187-2, TC15187-3, TC15187-4, TC15187-5, TC15187-6

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	BSD mg/l	BSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	1	0.868	87	0.970	97	11	41-105/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
84-15-1	o-Terphenyl	90%	102%	25-112%

(a) Insufficient sample volume for MS/MSD

* = Outside of Control Limits.