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13

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ENDEAVOR ENERGY RESOURCES, LP

2/5/2016

**SITE REMEDIATION AND
CLOSURE REPORT**

**ENDEAVOR ENERGY RESOURCES, LP
PETERSON "C" LEASE, WELL #1, API: 30-041-20362
ROOSEVELT COUNTY, NEW MEXICO**

Prepared For:
**ENDEAVOR ENERGY RESOURCES, LP
110 N. MARIENFELD, SUITE 200
MIDLAND, TEXAS 79701**

Prepared By:
**SOUTH ENVIRONMENTAL SERVICES, INC.
2400 S. LOOP 250 WEST
MIDLAND, TEXAS 79703**

05/13/10
1) BENZENE
USED WRONG
LIMIT
2) C-14/15?

NOVEMEBER 2009

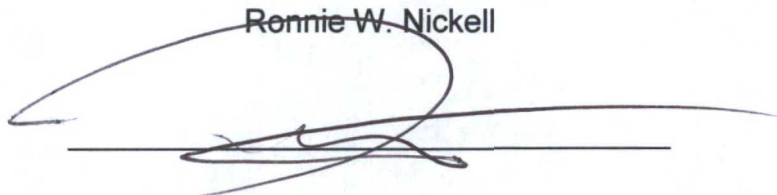
A Report Prepared for:

ENDEAVOR ENERGY RESOURCES, LP.
110 N. MARIENFELD, SUITE 200
MIDLAND, TEXAS 79701

SITE REMEDIATION AND
CLOSURE REPORT

Prepared by:

Ronnie W. Nickell

A handwritten signature in dark ink, appearing to be 'Ronnie W. Nickell', written over a horizontal line. The signature is stylized with a large loop at the beginning and a long horizontal stroke extending to the right.

SOUTH ENVIRONMENTAL SERVICES, INC
2400 S. LOOP 250 WEST
MIDLAND, TEXAS 79703

NOVEMBER 2009

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ATTACHMENTS

ATTACHMENT 1: LABORATORY ANALYSIS TABLES

TABLE 1: Concentrations of TPH, BTEX, and Chlorides in Soil

ATTACHEMENT 2: SITE FIGURES

FIGURE 1: Site Aerial Photograph

FIGURE 2: Site Location Map

FIGURE 3: Site Map

ATTACHEMENT 3: SITE PHOTOGRAPHS

ATTACHMENT 4: LABORATORY ANALYSIS REPORTS

1.0 INTRODUCTION

On behalf of Endeavor Energy Resources, LP. (Endeavor), South Environmental Services, Inc. (South Environmental) is pleased to submit this Site Remediation and Closure Report for the site known as Peterson "C" Lease, Well #1. This report presents the results of initial response, site investigation, and remedial actions performed at the above referenced site.

1.1 Purpose of the Report

The purpose of this report is to present the results of the site investigation and document response and remedial actions completed to date in order to facilitate closure for this site.

2.0 SUMMARY OF FIELD ACTIVITIES

2.1 Site Remediation and Closure Activities

The following activities were completed to achieve compliance with Oil Conservation Division (OCD) Statewide Rule for Total Petroleum Hydrocarbons (TPH) (<1,000 mg/kg), Chlorides (<500ppm), and Benzene (<50.0 mg/kg), as set out below:

- Mobilized SES personnel and equipment to the site,
- Excavated approximately 34 cubic yards of impacted soil at a total depth of 24 to 30 inches,
- Blended and treated impacted soil with bio-enhancement nutrients and surfactants in on-site stockpile,
- Performed excavation bottom hole confirmation sampling event to verify remedial levels, TPH <1,000 mg/kg, Chlorides <500 mg/kg, and Benzene <50.0 mg/kg,
- Backfilled excavation areas with clean caliche, based on verification of remedial goals,
- Performed Stockpile Characterization sampling event to verify attainment of remedial levels of TPH (<1,000 ppm) and Benzene (<50.0 ppm), and Chlorides (<500 ppm).
- Preparation of a Site Remediation and Closure Report for submittal to the OCD, as required to resolve the enforcement action regulatory requirements as set out below.

3.0 DISTRIBUTION OF HYDROCARBONS IN SOIL

The distribution of hydrocarbons in the unsaturated zone was determined by utilizing the following techniques:

1. Visual observations of soils during trenching and/or excavation during remediation;
2. Visual observations of soils during the following excavation;
3. Visual observations of soil samples; and,
4. Laboratory analyses of the above samples.

Following excavation of impacted soil, confirmation soil samples were collected from the base of the excavation, based on a minimum of one (1) discrete sample for each 500 square feet of surface area. Following conformation sampling event(s), any area still exhibiting TPH concentrations >1,000 mg/kg, Chloride concentrations >500 mg/kg, or Benzene concentrations >50.0 mg/kg were over-excavated and re-sampled to confirm attainment of remedial goals. All samples were submitted for laboratory analysis for TPH, BTEX, and Chlorides as referenced above. Site photographs are included as Attachment 3.

3.1 Remediation Results

Following intensive remediation of the site, via land farming, site inspections and multiple sampling events were conducted on October 16, 2009, and a sample on October 30, 2009. Samples were collected at multiple locations within the Well impact area as depicted in Attachment 2, Figure 3, centrally located throughout the impact area to verify remediation of TPH to <1,000 mg/kg, Benzene <50.0 ppm, and Chlorides <500 ppm.

All remediation confirmation samples collected from each area were analyzed for TPH (SW 8015B Method), BTEX (SW 8021B Method), and Chlorides (EPA 300 Method). Analysis results demonstrated TPH concentrations ranging from 53.6 mg/kg to 134 mg/kg, and Benzene non-detect in all samples collected at each location or quadrant. Further remediation was required for the area that tested with a Chloride level of 1400 mg/kg. After further remediation a resample was conducted for the SP1-002 sample that tested with a Chloride level of non-detect. Laboratory results are included in Attachment 1, Table 1 and in Attachment 4, Laboratory Analysis Reports.

4.0 QA/QC PROCEDURES

4.1 Soil Sampling

Samples of subsurface and treated soils will be obtained utilizing proper EPA protocols and/or standards. Representative soil samples will be collected using clean, disposable gloves and clean sampling tools. The soil sample will then be placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container will be filled to capacity to limit the amount of head-space present. Each

container will be filled to capacity to limit the amount of head-space present. Each container will be labeled and placed on ice in an insulated cooler. Upon selection of samples for analysis, the cooler will be sealed for shipment to the laboratory. Proper chain-of-custody documentation will be maintained throughout the sampling and transportation process.

Soil samples will be delivered to Cardinal Laboratories in Hobbs, NM for TPH, BTEX, and Chloride analyses using the methods described below. Soil samples will be analyzed for BTEX, TPH, and Chlorides within fourteen days following the collection date.

The soil samples were analyzed as follows:

1. BTEX concentrations in accordance with Method SW-846 8021B
2. TPH concentrations in accordance with EPA SW-846 8015M
3. Chloride concentrations in accordance with Method 4500-Cl-B

4.2 Laboratory Protocol

The laboratory will be responsible for proper QA/QC procedures. These procedures will either be transmitted with the laboratory reports or on file at the laboratory.

5.0 LIMITATIONS

South Environmental Services, Inc. has prepared this Site Remediation and Closure Report to the best of its ability. No other warranty, expressed or implied, is made or intended.

South Environmental Services, Inc. has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. South Environmental Services, Inc. has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. South Environmental Services, Inc. has prepared this report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. South Environmental Services, Inc. also notes that the facts and conditions referenced in this report may change over time and the conclusions and

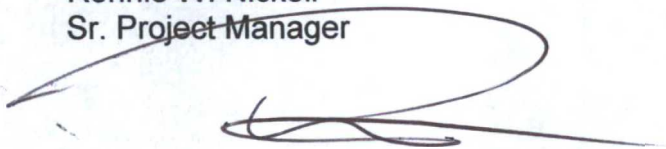
recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of Endeavor Energy Services, LP. The information contained in this report including all exhibits and attachments, may not be used by any other party without the express consent of South Environmental Services, Inc. and/or Endeavor Energy Services, LP.

Thank you for your assistance in this matter. If you have any questions or require additional information, please contact me at 432-425-8454.

Sincerely,
SOUTH ENVIRONMENTAL SERVICES, INC

Ronnie W. Nickell
Sr. Project Manager

A handwritten signature in dark ink, appearing to be 'Ronnie W. Nickell', written over the printed name and title.

Cc: Endeavor Energy Services, LP, Midland, Texas

CONCENTRATIONS OF TPH, BTEX, & CHLORIDES SOIL

Petterson "C" Lease, Well #1
Endeavor Energy Resources, LP

Roosevelt County, NM

All concentrations are in mg/kg

[illegible]



		Figure 1 Aerial Photo	
		South Environmental Services, Inc.	
Peterson "C" #1		Endeavor Energy	
Drawn By: JDJ October 4, 2009		Rev: A-2 Scale: 1" = 160'	

DRAFT

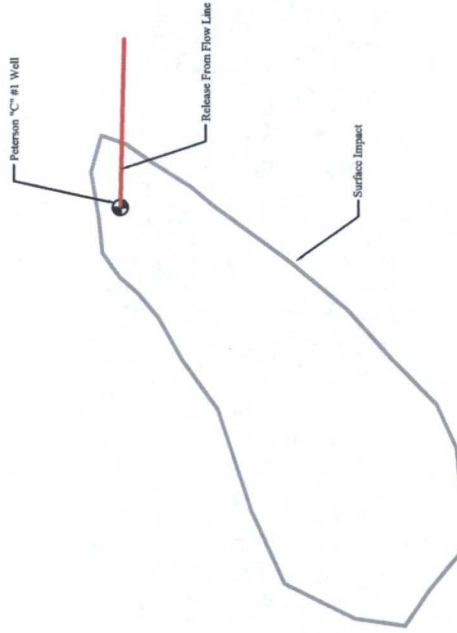


		Figure 3 Site Map
Peterson 'C' #1		Endeavor Energy
Drawn By: JDJ October 4, 2009		Rev: A-2 Scale: 1" = 20'
		South Environmental Services, Inc.

Amoco Production Company



ENDEAVOR ENERGY RESOURCES, L.P.

L.P.

PETERSON
COWELL NO. 1
NE/4 SE/4 SEC. 18-T5S-R33E



Analytical Report 348976

for

Endeavor Energy

Project Manager: Ronnie Nickell

Peterson "C", Well # 1

22-OCT-09



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-08-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00308), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87428), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-08-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-08-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370-08-TX)

Xenco-Boca Raton (EPA Lab Code: FL00449): Florida(E86240),

South Carolina(96031001), Louisiana(04154), Georgia(917)



CASE NARRATIVE

Client Name: Endeavor Energy

Project Name: Peterson "C", Well # 1

Project ID:

Work Order Number: 348976

Report Date: 22-OCT-09

Date Received: 10/19/2009

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-778022 Percent Moisture

None

Batch: LBA-778029 Inorganic Anions by EPA 300

None

Batch: LBA-778206 BTEX-MTBE EPA 8021B

None

Batch: LBA-778279 TPH by SW8015 Mod

None



Certificate of Analysis Summary 348976

Endeavor Energy, Midland, TX
Project Name: Peterson "C", Well # 1



Project Id:
Contact: Ronnie Nickell
Project Location: Roosevelt County, NM

Date Received in Lab: Mon Oct-19-09 02:45 pm
Report Date: 22-OCT-09
Project Manager: Brent Barron, II

Analysis Requested		Lab Id:	348976-001			
		Field Id:	SP1-001			
		Depth:	0-2 ft			
		Matrix:	SOIL			
		Sampled:	Oct-16-09 11:35			
Anions by E300		Extracted:				
		Analyzed:	Oct-20-09 18:28			
		Units/RL:	mg/kg RL			
Chloride			1400 47.6			
BTX by EPA 8021B		Extracted:	Oct-20-09 13:30			
		Analyzed:	Oct-21-09 01:39			
		Units/RL:	mg/kg RL			
Benzene			ND 0.0011			
Toluene			ND 0.0023			
Ethylbenzene			ND 0.0011			
m,p-Xylenes			ND 0.0023			
o-Xylene			ND 0.0011			
Total Xylenes			ND 0.0011			
Total BTX			ND 0.0011			
Percent Moisture		Extracted:				
		Analyzed:	Oct-20-09 17:00			
		Units/RL:	% RL			
Percent Moisture			11.7 1.00			
TPH By SW8015 Mod		Extracted:	Oct-20-09 15:00			
		Analyzed:	Oct-21-09 10:33			
		Units/RL:	mg/kg RL			
C6-C12 Gasoline Range Hydrocarbons			ND 16.9			
C12-C28 Diesel Range Hydrocarbons			134 16.9			
C28-C35 Oil Range Hydrocarbons			ND 16.9			
Total TPH			134 16.9			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Brent Barron, II
Odessa Laboratory Manager

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the MQL and above the SQL.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- BRL** Below Reporting Limit.
- RL** Reporting Limit
- * Outside XENCO's scope of NELAC Accreditation.

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(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(361) 884-0371	(361) 884-9116

Form 2 - Surrogate Recoveries

Project Name: Peterson "C", Well # 1

Work Orders : 348976,

Project ID:

Lab Batch #: 778206

Sample: 541129-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 00:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 778206

Sample: 541129-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 00:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Lab Batch #: 778206

Sample: 541129-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 01:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 778206

Sample: 348976-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/09 01:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0263	0.0300	88	80-120	
4-Bromofluorobenzene	0.0341	0.0300	114	80-120	

Lab Batch #: 778279

Sample: 541195-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 01:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	99.2	99.6	100	70-135	
o-Terphenyl	38.1	49.8	77	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Peterson "C", Well # 1

Work Orders : 348976,

Project ID:

Lab Batch #: 778279

Sample: 541195-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 02:06

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.6	100	95	70-135	
o-Terphenyl	37.1	50.0	74	70-135	

Lab Batch #: 778279

Sample: 541195-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 02:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.0	99.5	82	70-135	
o-Terphenyl	39.3	49.8	79	70-135	

Lab Batch #: 778279

Sample: 348976-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/09 10:33

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.8	99.8	95	70-135	
o-Terphenyl	46.9	49.9	94	70-135	

Lab Batch #: 778279

Sample: 348985-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/09 12:14

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.8	107	70-135	
o-Terphenyl	41.3	49.9	83	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Project Name: Peterson "C", Well # 1

Work Order #: 348976

Project ID:

Lab Batch #: 778029

Sample: 778029-1-BKS

Matrix: Solid

Date Analyzed: 10/20/2009

Date Prepared: 10/20/2009

Analyst: LATCOR

Reporting Units: mg/kg

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

Anions by E300 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Chloride	ND	10.0	9.69	97	75-125	

Blank Spike Recovery [D] = $100 * [C] / [B]$

All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Project Name: Peterson "C", Well # 1

Work Order #: 348976

Analyst: ASA

Lab Batch ID: 778206

Sample: 541129-1-BKS

Date Prepared: 10/20/2009

Batch #: 1

Project ID:

Date Analyzed: 10/21/2009

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Units: mg/kg												
Analytes	BTEX by EPA 8021B											
	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Benzene	ND	0.1000	0.0871	87	0.1	0.0881	88	1	70-130	35	
	Toluene	ND	0.1000	0.0851	85	0.1	0.0862	86	1	70-130	35	
	Ethylbenzene	ND	0.1000	0.0859	86	0.1	0.0876	88	2	71-129	35	
	m,p-Xylenes	ND	0.2000	0.1886	94	0.2	0.1927	96	2	70-135	35	
	o-Xylene	ND	0.1000	0.0913	91	0.1	0.0936	94	2	71-133	35	

Analyst: BEV

Lab Batch ID: 778279

Sample: 541195-1-BKS

Date Prepared: 10/20/2009

Batch #: 1

Date Analyzed: 10/21/2009

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	ND	996	1030	103	1000	948	95	8	70-135	35	
C12-C28 Diesel Range Hydrocarbons	ND	996	961	96	1000	898	90	7	70-135	35	

Relative Percent Difference RPD = $200 \times [(C-F)/(C+F)]$

Blank Spike Recovery [D] = $100 \times (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 \times (F)/[E]$

All results are based on MDL and Validated for QC Purposes

Project Name: Peterson "C", Well # 1

Work Order #: 348976

Lab Batch #: 778029

Date Analyzed: 10/20/2009

QC- Sample ID: 348940-001 S

Reporting Units: mg/kg

Project ID:

Analyst: LATCOR

Date Prepared: 10/20/2009

Batch #: 1

Matrix: Soil

MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Chloride	1270	1520	2870	105	75-125	

Lab Batch #: 778279

Date Analyzed: 10/21/2009

QC- Sample ID: 348985-001 S

Reporting Units: mg/kg

Date Prepared: 10/20/2009

Analyst: BEV

Batch #: 1

Matrix: Soil

MATRIX / MATRIX SPIKE RECOVERY STUDY

TPH by SW8015 Mod	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
C6-C12 Gasoline Range Hydrocarbons	16.0	1040	1130	107	70-135	
C12-C28 Diesel Range Hydrocarbons	74.9	1040	1140	102	70-135	

Matrix Spike Percent Recovery [D] = $100 \cdot (C-A)/B$
 Relative Percent Difference [E] = $200 \cdot (C-A)/(C+B)$
 All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Project Name: Peterson "C", Well # 1

Work Order #: 348976

Lab Batch #: 778029

Date Analyzed: 10/20/2009

QC- Sample ID: 348940-001 D

Reporting Units: mg/kg

Date Prepared: 10/20/2009

Batch #: 1

Project ID:

Analyst: LATCOR

Matrix: Soil

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	1270	1250	2	20	

Lab Batch #: 778022

Date Analyzed: 10/20/2009

QC- Sample ID: 348976-001 D

Reporting Units: %

Date Prepared: 10/20/2009

Batch #: 1

Analyst: ASA

Matrix: Soil

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	11.7	11.4	3	20	

Spike Relative Difference RPD $200 * |(B-A)/(B+A)|$

All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

Xenco Laboratories

The Environmental Lab of Texas

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST
13600 West I-20 East
Odessa, Texas 79755
Phone: 432-583-1800
Fax: 432-583-1713

Project Manager:

Ronnie Nickell

Company Name

Endeavor Energy

Company Address:

110 N. Mainfield St Suite 200

City/State/Zip:

Midland, TX 79701

Telephone No:

432-425-8454

Sampler Signature:

Krista Burnett

Fax No:

Report Format:

☒ Standard ☐ TRRP ☐ NPDES

e-mail:

ronnie@xencolab.com

PO #:

Project Name:

Peterson "C", Well #1

Project #:

Project Loc:

Roosevelt County, NM

LAB # (lab use only)

348970

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Environmental Lab of Texas
Variance/ Corrective Action Report- Sample Log-In

Client: Endeavor Energy
Date/ Time: 10-19-09 14:45
Lab ID #: 348976
Initials: AL

Sample Receipt Checklist

				Client Initials
#1	Temperature of container/ cooler?	<input checked="" type="checkbox"/> Yes	No	<u>1.6</u> °C
#2	Shipping container in good condition?	<input checked="" type="checkbox"/> Yes	No	
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	<u>Not Present</u>
#4	Custody Seals intact on sample bottles/ container?	Yes	No	<u>Not Present</u>
#5	Chain of Custody present?	<input checked="" type="checkbox"/> Yes	No	
#6	Sample instructions complete of Chain of Custody?	<input checked="" type="checkbox"/> Yes	No	
#7	Chain of Custody signed when relinquished/ received?	<input checked="" type="checkbox"/> Yes	No	
#8	Chain of Custody agrees with sample label(s)?	Yes	No	<u>10 written on 20ml Lid</u>
#9	Container label(s) legible and intact?	Yes	No	<u>Not Applicable</u>
#10	Sample matrix/ properties agree with Chain of Custody?	<input checked="" type="checkbox"/> Yes	No	
#11	Containers supplied by ELOT?	<input checked="" type="checkbox"/> Yes	No	
#12	Samples in proper container/ bottle?	<input checked="" type="checkbox"/> Yes	No	See Below
#13	Samples properly preserved?	<input checked="" type="checkbox"/> Yes	No	See Below
#14	Sample bottles intact?	<input checked="" type="checkbox"/> Yes	No	
#15	Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No	
#16	Containers documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No	
#17	Sufficient sample amount for indicated test(s)?	<input checked="" type="checkbox"/> Yes	No	See Below
#18	All samples received within sufficient hold time?	<input checked="" type="checkbox"/> Yes	No	See Below
#19	Subcontract of sample(s)?	Yes	No	<u>Not Applicable</u>
#20	VOC samples have zero headspace?	<input checked="" type="checkbox"/> Yes	No	Not Applicable

Variance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken:

- Check all that Apply:
- ☐ See attached e-mail/ fax
 - ☐ Client understands and would like to proceed with analysis
 - ☐ Cooling process had begun shortly after sampling event

Analytical Report 348978

for

Endeavor Energy

Project Manager: Ronnie Nickell

Petterson "C", Well # 1

22-OCT-09



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-08-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
Rhode Island (LAO00308), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87428), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-08-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-08-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370-08-TX)

Xenco-Boca Raton (EPA Lab Code: FL00449): Florida(E86240),

South Carolina(96031001), Louisiana(04154), Georgia(917)



22-OCT-09

Project Manager: **Ronnie Nickell**

Endeavor Energy

110 N. Marienfeld, Suite 200

Midland, TX 79701

Reference: XENCO Report No: **348978**

Petterson "C", Well # 1

Project Address: Roosevelt County, NM

Ronnie Nickell:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 348978. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 348978 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

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Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



Sample Cross Reference 348978



Endeavor Energy, Midland, TX

Petterson "C", Well # 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH1-001	S	Oct-16-09 11:30	0 - 2 ft	348978-001



CASE NARRATIVE

Client Name: Endeavor Energy

Project Name: Petterson "C", Well # 1

Project ID:

Work Order Number: 348978

Report Date: 22-OCT-09

Date Received: 10/19/2009

Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-778022 Percent Moisture

None

Batch: LBA-778029 Inorganic Anions by EPA 300

None

Batch: LBA-778206 BTEX-MTBE EPA 8021B

None

Batch: LBA-778279 TPH by SW8015 Mod

None

Certificate of Analysis Summary 348978

Endeavor Energy, Midland, TX
Project Name: Petterson "C", Well # 1



Project Id:
Contact: Ronnie Nickell
Project Location: Roosevelt County, NM

Date Received in Lab: Mon Oct-19-09 02:45 pm
Report Date: 22-OCT-09
Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	348978-001			
	Field Id:	BH1-001			
	Depth:	0-2 ft			
	Matrix:	SOIL			
Anions by E300	Sampled:	Oct-16-09 11:30			
	Extracted:				
	Analyzed:	Oct-20-09 18:28			
	Units/RL:	mg/kg RL 4.39			
BTEX by EPA 8021B	Extracted:	Oct-20-09 13:30			
	Analyzed:	Oct-21-09 02:01			
	Units/RL:	mg/kg RL			
		ND 0.0010			
		ND 0.0021			
		ND 0.0010			
		ND 0.0021			
		ND 0.0010			
Total Xylenes		ND 0.0010			
		ND 0.0010			
		ND 0.0010			
		ND 0.0010			
Percent Moisture	Extracted:				
	Analyzed:	Oct-20-09 17:00			
	Units/RL:	% RL 1.00			
		4.31			
TPH By SW8015 Mod	Extracted:	Oct-20-09 15:00			
	Analyzed:	Oct-21-09 10:58			
	Units/RL:	mg/kg RL 15.6			
		ND 15.6			
C6-C12 Gasoline Range Hydrocarbons		53.6			
		15.6			
		ND 15.6			
		53.6			
Total TPH		15.6			
		53.6			
		15.6			
		53.6			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Since 1990 Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America - Atlanta - Corpus Christi

Brent Barron, II
Odessa Laboratory Manager

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the MQL and above the SQL.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

BRL Below Reporting Limit.

RL Reporting Limit

* Outside XENCO's scope of NELAC Accreditation.

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5332 Blackberry Drive, San Antonio TX 78238
2505 North Falkenburg Rd, Tampa, FL 33619
5757 NW 158th St, Miami Lakes, FL 33014
12600 West I-20 East, Odessa, TX 79765
842 Cantwell Lane, Corpus Christi, TX 78408

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(361) 884-0371	(361) 884-9116

Form 2 - Surrogate Recoveries

Project Name: Petterson "C", Well # 1

Work Orders : 348978,

Project ID:

Lab Batch #: 778206

Sample: 541129-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 00:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 778206

Sample: 541129-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 00:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Lab Batch #: 778206

Sample: 541129-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 01:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 778206

Sample: 348978-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/21/09 02:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0267	0.0300	89	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

Lab Batch #: 778279

Sample: 541195-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/21/09 01:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	99.2	99.6	100	70-135	
o-Terphenyl	38.1	49.8	77	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Analytical Report 350920

for

Endeavor Energy

Project Manager: Ronnie Nickell

Peterson "C" Well # 1

05-NOV-09



12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-08-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)
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Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

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