

# *Basin Environmental Service Technologies, LLC*

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## **REMEDIATION SUMMARY AND SITE CLOSURE REQUEST**


**SOUTHERN UNION GAS SERVICES  
Line 2B (2010-055)  
Lea County, New Mexico  
Unit Letter "O" (SW/SE), Section 31, Township 24 South, Range 37 East  
Latitude 32° 10.212' North, Longitude 103° 11.978' West  
NMOCD Reference # 1RP-2586**

Prepared For:

Southern Union Gas Services  
801 S. Loop 464  
Monahans, TX 79756

Prepared By:  
Basin Environmental Service Technologies, LLC

**March 2011**

  
Ben J. Arguijo  
Project Manager

**RECEIVED**  
APR 15 2011  
HOBBSOCD

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## 1.0 INTRODUCTION

Basin Environmental Service Technologies, LLC (Basin), on behalf of Southern Union Gas Services (Southern Union), has prepared this "Remediation Summary and Site Closure Request" for the release site known as Line 2B. The legal description of the release site is Unit Letter "O" (SW/SE), Section 31, Township 24 South, Range 37 East, in Lea County, New Mexico. The geographic coordinates of the release site are 32° 10.212' North latitude and 103° 11.978' West longitude. The property affected by the release is owned by the Woolworth Trust. A "Site Location Map" is provided as Figure 1.

On July 14, 2010, a release occurred during the replacement of a section of Southern Union's six (6)-inch "Line 2B" steel pipeline. The release was reported to the New Mexico Oil Conservation Division (NMOCD) Hobbs District Office on July 15, 2010. The "Release Notification and Corrective Action" (Form C-141) indicated approximately eight (8) barrels of crude oil and produced water was released, affecting a pipeline trench measuring approximately sixty (60) linear feet in length. During initial response activities, a vacuum truck was utilized to recover approximately six (6) barrels of free fluids, the area of impact was delineated, and the release site was excavated. General photographs of the site are provided as Appendix B. The "Release Notification and Corrective Action" (Form C-141) is provided as Appendix C.

On August 8, 2010, a previous consultant collected six (6) soil samples (Floor East; Floor West; West, West Wall; West, East Wall; West, North Wall; and West, South Wall) from the floor and sidewalls of the excavation. The soil samples were submitted to Xenco Laboratories (Odessa, TX) for analysis of benzene, toluene, ethyl-benzene, and xylenes (BTEX), total petroleum hydrocarbon (TPH), and/or chloride concentrations using EPA Method SW-846 8021b, EPA Method SW-846 8015M, and EPA Method 300.1, respectively.

Laboratory analytical results indicated benzene concentrations were less than the laboratory method detection limit (MDL) for all soil samples submitted. BTEX concentrations ranged from less than the laboratory MDL for soil samples Floor East; Floor West; and West, South Wall to 86.56 mg/Kg for soil sample West, West Wall. TPH concentrations ranged from 136 mg/Kg for soil sample Floor East to 22,690 for soil sample West, West Wall. Chloride concentrations ranged less than the laboratory MDL for soil samples Floor East; West, West Wall; and West, South Wall to 161 mg/Kg for soil sample Floor West. Table 1 summarizes the "Concentrations of Benzene, BTEX, TPH & Chlorides in Soil". Laboratory analytical reports are provided as Appendix A.

## 2.0 NMOCD SITE CLASSIFICATION

A search of the New Mexico Water Rights Reporting System (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE) indicated depth to groundwater information was unavailable for Section 31, Township 24 South, Range 37 East. A depth to groundwater reference map utilized by the NMOCD indicates groundwater should be encountered at approximately fifty (50) feet below ground surface (bgs). Based on the NMOCD ranking system, twenty (20) points will be assigned to the site as a result of this criterion.



A search of the NMWRRS database indicated there are no water wells within 1,000 feet of the release. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

There are no surface water bodies within 1,000 feet of the release. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

NMOCD guidelines indicate the Line 2B release site has a ranking score of twenty (20). The soil remediation levels for a site with a ranking score of twenty (20) points are as follows:

- Benzene – 10 mg/kg (ppm)
- BTEX – 50 mg/kg (ppm)
- TPH – 100 mg/kg (ppm)

The New Mexico Administrative Code (NMAC) does not currently specify a remediation level for chloride concentrations in soil. Chloride remediation levels are set by the NMOCD on a site-specific basis.

### **3.0 SUMMARY OF SOIL REMEDIATION ACTIVITIES**

On December 14, 2010, remediation activities began at the site. Impacted soil from the initial response activities was stockpiled on-site pending final disposition. Hach Quantab Chloride Low Range (30-600 mg/Kg) Titrators were used to field-screen the horizontal and vertical extent of impacted soil and to guide the excavation. The excavation was divided into two sections: "East" and "West".

On December 16 through 21, 2010, excavation of hydrocarbon-impacted soil commenced at the site. Approximately two hundred and forty (240) cubic yards (cy) of impacted soil was excavated from the "West" excavation and transported to Sundance Services, Inc. ("Sundance", NMOCD Permit # NM-01003), for disposal. Approximately fifty-six (56) cy of stockpiled material was transported to Sundance from the "East" excavation.

On December 21, 2010, seven (7) soil samples (East Floor, East Wall, Middle Floor, South Wall, North Wall, West Floor, and West Wall) were collected from the floor and sidewalls of the excavation and submitted to Xenco Laboratories (Odessa, TX) for analysis of benzene, toluene, ethyl-benzene, and xylenes (BTEX), total petroleum hydrocarbon (TPH), and/or chloride concentrations using EPA Method SW-846 8021b, EPA Method SW-846 8015M, and EPA Method 300.1, respectively.

Laboratory analytical results indicated benzene and BTEX concentrations were less than the appropriate laboratory (MDL) for all soil samples submitted. TPH concentrations ranged from less than the laboratory MDL for soil samples East Wall, Middle Floor, South Wall, North Wall, West Floor, and West Wall to 20.4 mg/Kg for soil sample East Floor. Chloride concentrations ranged from 9.55 mg/Kg for soil sample West Floor to 58.3 mg/Kg for soil sample East Floor. A "Site & Sample Location Map" is provided as Figure 2.

On December 21, 2010, Southern Union requested and received NMOCD approval to leave soil represented by soil sample Floor East in place.



On December 23, 2010, through January 3, 2011, approximately four hundred and eight (408) cy of stockpiled material was transported from the West excavation to Sundance for disposal.

Based on laboratory analytical results, and with NMOCD approval, on January 3 and 4, 2011, the excavation was backfilled in eighteen (18)-inch lifts, compacted, and contoured to fit the surrounding topography. Prior to backfilling, the final dimensions of the East excavation were approximately forty (40) feet in length, approximately eight (8) feet in width, and approximately six (6) feet in depth. The West excavation measured approximately thirty-four (34) feet in length, approximately thirty-six (36) feet in width, and ranging in depth from approximately eight (8) feet to approximately fifteen (15) feet.

#### **4.0 QA/QC PROCEDURES**

##### **4.1 Soil Sampling**

Soil samples were delivered to Xenco Laboratories, Inc., of Odessa, Texas, for BTEX, TPH, and/or chloride analyses using the methods described below. Soil samples were analyzed for BTEX, TPH, and/or chloride concentrations within fourteen (14) days following the collection date.

The soil samples were analyzed as follows:

- BTEX concentrations in accordance with EPA Method SW-846 8021b
- TPH concentrations in accordance with modified EPA Method SW-846 8015M
- Chloride concentrations in accordance with EPA Method 300.1

##### **4.2 Decontamination of Equipment**

Cleaning of the sampling equipment was the responsibility of the environmental technician. Prior to use, and between each sample, the sampling equipment was cleaned with Liqui-Nox® detergent and rinsed with distilled water.

##### **4.3 Laboratory Protocol**

The laboratory was responsible for proper QA/QC procedures after signing the chain-of-custody form(s). These procedures were either transmitted with the laboratory reports or are on file at the laboratory.

#### **5.0 SITE CLOSURE REQUEST**

Soil samples collected from the floors and sidewalls of the Line 2B "East" and "West" excavations were analyzed by an NMOCD approved laboratory, and concentrations of Benzene, BTEX, TPH, and chloride were less than the remediation action levels established for the site. Based on these analytical results, Basin recommends Southern Union provide the NMOCD Hobbs District Office a copy of this "Remediation Summary and Site Closure Request" and request the NMOCD grant site closure to the Line 2B release site.

## 6.0 LIMITATIONS

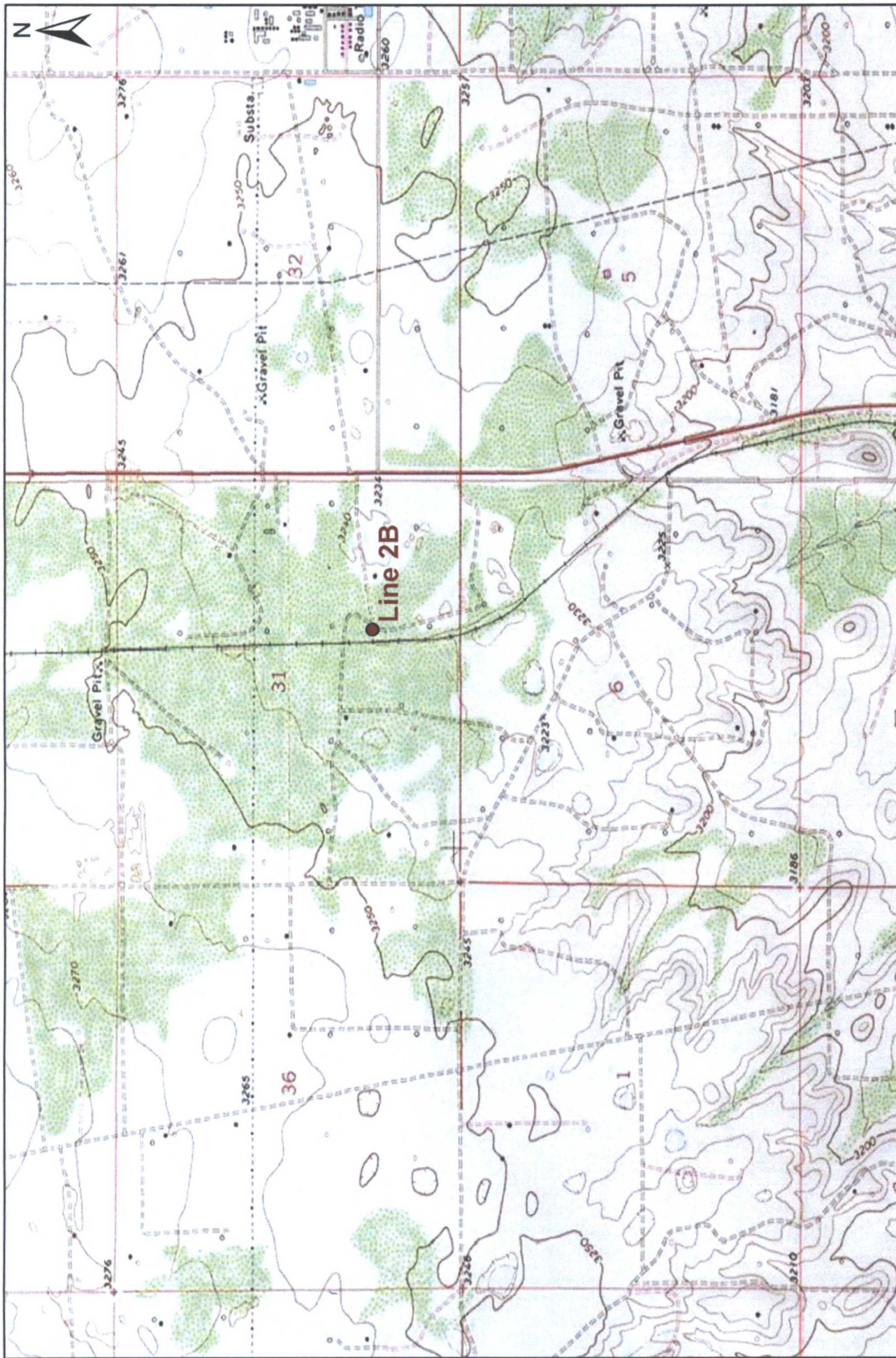
Basin Environmental Service Technologies, LLC, has prepared this *Remediation Summary and Site Closure Request* to the best of its ability. No other warranty, expressed or implied, is made or intended. Basin has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Basin has not conducted an independent examination of the facts contained in referenced materials and statements. Basin has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Basin has prepared this report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Basin 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 Southern Union Gas Services. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or Southern Union Gas Services.



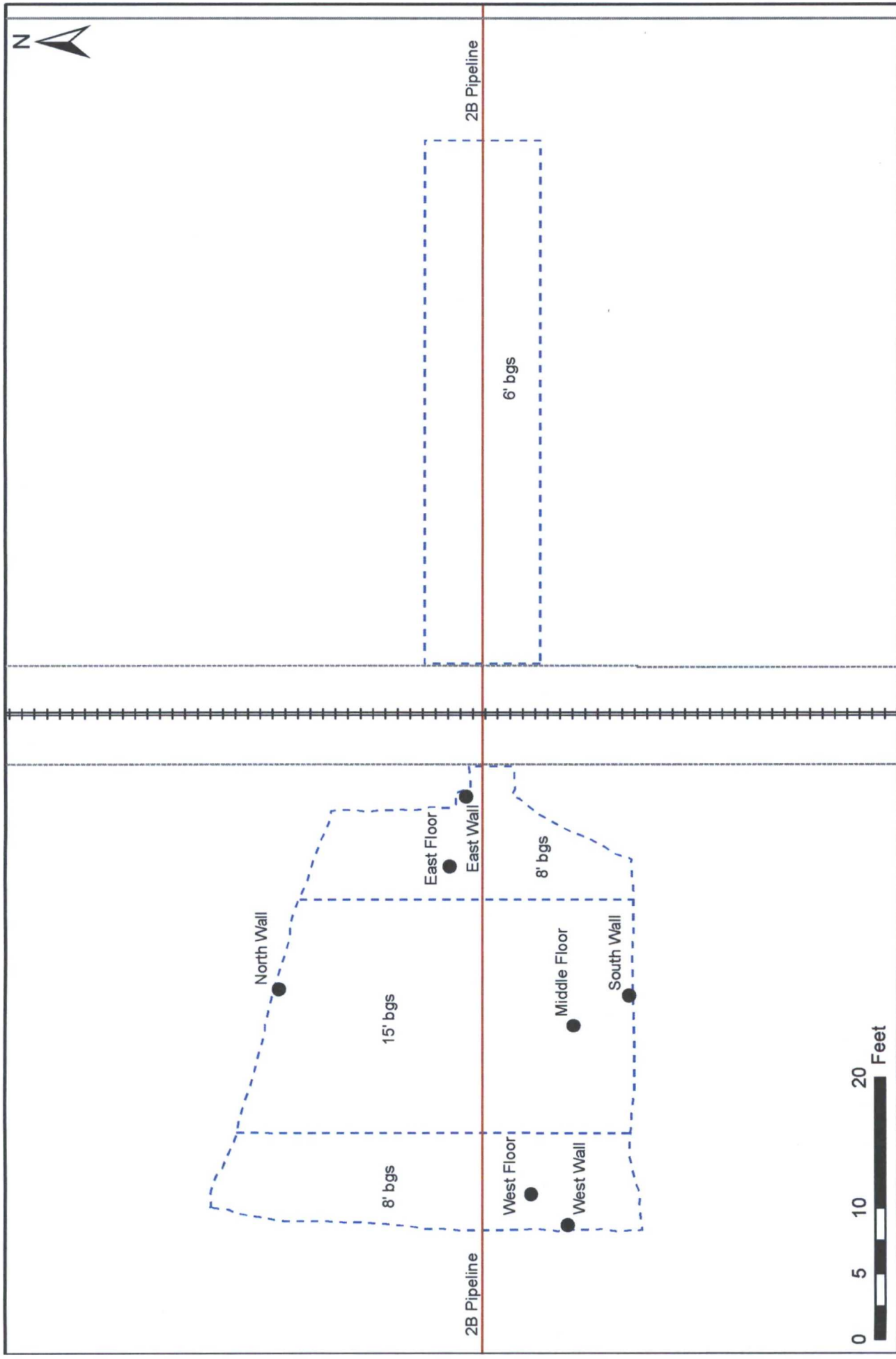
## **7.0 DISTRIBUTION:**

- Copy 1: Geoffrey Leking  
New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division (District 1)  
1625 French Drive  
Hobbs, New Mexico 88240  
GeoffreyR.Leking@state.nm.us
- Copy 2: Rose Slade  
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Monahans, Texas 79756  
rose.slade@sug.com
- Copy 3: Basin Environmental Service Technologies, LLC  
P.O. Box 301  
Lovington, New Mexico 88260  
bjarguijo@basinenv.com



<p><b>Figure 1</b>  <b>Site Location Map</b>  <b>Southern Union Gas Services</b>  <b>Line 2B</b>  <b>Lea County, New Mexico</b>  <b>1RP-2586</b></p>	<p><b>Basin Environmental Service Technologies, LLC</b></p>
<p>1,000 500 0 1,000 2,000</p> <p>Distance in Feet</p>	<p>Drawn By: BJA          Checked By: BRB          December 30, 2010          Scale: 1" = 2000'</p>





**Figure 2**

**Site & Sample Location Map**

**Southern Union Gas Services**

**Line 2B**

**Lea County, New Mexico**

**1RP-2586**

**Basin Environmental Service Technologies, LLC**

Drawn By: BJA	Checked By: BRB
January 13, 2010	
Scale: 1" = 10'	

**Legend:**

- - - - - Excavation Extent
- ==== Railroad
- Pipeline
- Road
- Sample Location

TABLE 1

## CONCENTRATIONS OF BENZENE, BTEX, TPH &amp; CHLORIDES IN SOIL

SOUTHERN UNION GAS SERVICES  
LINE 2B

LEA COUNTY, NEW MEXICO

PROJECT #: 2010-055

NMOC REFERENCE NO: 1RP-2586

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW-846 8021B					METHOD: EPA SW-846 8015M					TOTAL TPH C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	E 300.1 CHLORIDE (mg/Kg)
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	M.P. - XYLENES (mg/Kg)	O-XYLENE (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C <sub>6</sub> -C <sub>12</sub> (mg/Kg)	DRO C <sub>12</sub> -C <sub>28</sub> (mg/Kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/Kg)			
Floor East	6'	8/4/2010	In-Situ	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<15.6	136	<15.6	136	<4.37
Floor West	6'	8/4/2010	Excavated	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<15.6	998	<15.6	998	161
West, West Wall	6'	8/4/2010	Excavated	<1.072	7.721	16.58	48.05	14.21	86.56	8,090	14,600	<800	22,690	<4.5	
West, East Wall	6'	8/4/2010	In-Situ	<0.0052	<0.0103	0.0114	0.0334	0.0212	0.0660	62.2	123	<15.4	185	13.4	
West, North Wall	6'	8/4/2010	Excavated	<0.0010	0.0028	0.0016	0.0039	0.0015	0.0098	<155	1,230	<155	1,230	35.0	
West, South Wall	6'	8/4/2010	Excavated	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<154	2,070	<154	2,070	<8.63	
East Floor	8'	12/21/10	In-Situ	<0.0011	<0.0022	<0.0011	<0.0022	<0.0011	<0.0022	<0.0022	<16.3	20.4	<16.3	20.4	58.3
East Wall	8'	12/21/10	In-Situ	<0.0010	<0.0020	<0.0010	<0.0020	<0.0010	<0.0020	<0.0020	<15.3	<15.3	<15.3	<15.3	11.1
Middle Floor	15'	12/21/10	In-Situ	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<15.6	<15.6	<15.6	<15.6	11.3
South Wall	15'	12/21/10	In-Situ	<0.0010	<0.0021	<0.0010	<0.0021	<0.0010	<0.0021	<0.0021	<15.4	<15.4	<15.4	<15.4	10.1
North Wall	15'	12/21/10	In-Situ	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<16.0	<16.0	<16.0	<16.0	24.6
West Floor	8'	12/21/10	In-Situ	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<16.3	<16.3	<16.3	<16.3	9.55
West Wall	8'	12/21/10	In-Situ	<0.0011	<0.0021	<0.0011	<0.0021	<0.0011	<0.0021	<0.0021	<16.1	<16.1	<16.1	<16.1	10.2



# **Analytical Report 384421**

**for**

## **Eco-Logical Environmental**

**Project Manager: Scott Springer**

**Line 2B**

**18-AUG-10**



**Celebrating 20 Years of commitment to excellence in Environmental Testing Services**



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-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 (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), 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-TX)

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

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

Xenco-Boca Raton (EPA Lab Code: FL00449):

Florida(E86240),South Carolina(96031001), Louisiana(04154), Georgia(917)

North Carolina(444), Texas(T104704468-TX), Illinois(002295), Florida(E86349)



18-AUG-10

Project Manager: **Scott Springer**  
**Eco-Logical Environmental**  
2200 Market Street  
Midland, TX 79703

Reference: XENCO Report No: **384421**  
**Line 2B**  
Project Address:

**Scott Springer:**

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 384421. 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. 384421 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

*Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.*

*Certified and approved by numerous States and Agencies.*

*A Small Business and Minority Status Company that delivers SERVICE and QUALITY*

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## Sample Cross Reference 384421



Eco-Logical Environmental, Midland, TX

Line 2B

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Floor East	S	Aug-04-10 00:00	6 ft	384421-001
Floor West	S	Aug-04-10 00:00	6 ft	384421-002
West, West Wall	S	Aug-04-10 00:00	6 ft	384421-003
West, East Wall	S	Aug-04-10 00:00	6 ft	384421-004
West, North Wall	S	Aug-04-10 00:00	6 ft	384421-005
West, South Wall	S	Aug-04-10 00:00	6 ft	384421-006



## CASE NARRATIVE

*Client Name: Eco-Logical Environmental*

*Project Name: Line 2B*



*Project ID:*  
*Work Order Number: 384421*

*Report Date: 18-AUG-10*  
*Date Received: 08/05/2010*

---

**Sample receipt non conformances and Comments:**

None

---

**Sample receipt Non Conformances and Comments per Sample:**

None

**Analytical Non Conformances and Comments:**

Batch: LBA-817728 Percent Moisture

None

Batch: LBA-817881 TPH By SW8015 Mod

None

Batch: LBA-818183 Anions by E300

None

Batch: LBA-818482 BTEX by EPA 8021B

None

Batch: LBA-818700 BTEX by EPA 8021B

SW8021BM

Batch 818700, 1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 384421-003.

4-Bromofluorobenzene recovered above QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 384421-004,384421-003.

Batch: LBA-819177 SVOA STAR List by SW-846 8270C

SW8270C

Batch 819177, 2,4,6-Tribromophenol, 2-Fluorophenol recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 384421-003.

Nitrobenzene-d5 recovered above QC limits . Matrix interferences is suspected; data confirmed by re-analysis

Samples affected are: 384421-003.

Dilution run due to failing internal standard responses at lower dilutions

# Certificate of Analysis Summary 384421

## Eco-Logical Environmental, Midland, TX



**Project Id:**  
**Contact:** Scott Springer  
**Project Location:**

**Project Name:** Line 2B

**Date Received in Lab:** Thu Aug-05-10 11:25 am  
**Report Date:** 18-AUG-10

**Project Manager:** Brent Barron, II

<b>Analysis Requested</b>	<b>Lab Id:</b>	384421-001	384421-002	384421-003	384421-004	384421-005	384421-006
	<b>Field Id:</b>	Floor East	Floor West	West, West Wall	West, East Wall	West, North Wall	West, South Wall
	<b>Depth:</b>	6- ft	6- ft	6- ft	6- ft	6- ft	6- ft
	<b>Matrix:</b>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
<b>Anions by E300</b>	<b>Sampled:</b>	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00
	<b>Extracted:</b>						
	<b>Analyzed:</b>	Aug-09-10 17:57	Aug-09-10 17:57	Aug-09-10 17:57	Aug-09-10 17:57	Aug-09-10 17:57	Aug-09-10 17:57
	<b>Units/RL:</b>	ND 4.37	161 8.96	ND 4.50	13.4 4.33	35.0 17.4	ND 8.63
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b>	Aug-10-10 08:00	Aug-10-10 08:00	Aug-12-10 14:30	Aug-12-10 14:30	Aug-10-10 08:00	Aug-10-10 08:00
	<b>Analyzed:</b>	Aug-10-10 12:30	Aug-10-10 14:02	Aug-12-10 23:08	Aug-12-10 21:11	Aug-10-10 14:49	Aug-10-10 15:12
	<b>Units/RL:</b>	ND 0.0010	ND 0.0011	ND 1.072	ND 0.0052	ND 0.0010	ND 0.0010
		ND 0.0021	ND 0.0021	7.721 2.145	ND 0.0103	0.0028 0.0021	ND 0.0021
Benzene		ND 0.0010	ND 0.0011	ND 1.072	ND 0.0052	ND 0.0010	ND 0.0010
Toluene		ND 0.0021	ND 0.0021	16.58 1.072	0.0114 0.0052	0.0016 0.0010	ND 0.0021
Ethylbenzene		ND 0.0010	ND 0.0021	48.05 2.145	0.0334 0.0103	0.0039 0.0021	ND 0.0021
m,p-Xylenes		ND 0.0010	ND 0.0011	14.21 1.072	0.0212 0.0052	0.0015 0.0010	ND 0.0010
o-Xylene		ND 0.0010	ND 0.0011	62.26 1.072	0.0546 0.0052	0.0054 0.0010	ND 0.0010
Total Xylenes		ND 0.0010	ND 0.0011	86.56 1.072	0.0660 0.0052	0.0098 0.0010	ND 0.0010
Total BTEX		ND 0.0010	ND 0.0011	86.56 1.072	0.0660 0.0052	0.0098 0.0010	ND 0.0010

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





Certificate of Analysis Summary 384421  
Eco-Logical Environmental, Midland, TX



Project Id:

Contact: Scott Springer

Project Location:

Date Received in Lab: Thu Aug-05-10 11:25 am

Report Date: 18-AUG-10

Project Manager: Brent Barron, II

Project Name: Line 2B

Analysis Requested	Lab Id:	384421-001	384421-002	384421-003	384421-004	384421-005	384421-006
	Field Id:	Floor East	Floor West	West, West Wall	West, East Wall	West, North Wall	West, South Wall
	Depth:	6- ft	6- ft	6- ft	6- ft	6- ft	6- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00
SVOA PAHs List by EPA 8270C SUB: T104704215-TX	Extracted:			Aug-13-10 12:50			
	Analyzed:			Aug-17-10 13:47			
	Units/RL:			mg/kg RL			
	Acenaphthene			ND 8.92			
	Acenaphthylene			ND 8.92			
	Anthracene			ND 8.92			
	Benzo(a)anthracene			ND 8.92			
	Benzo(a)pyrene			ND 8.92			
	Benzo(b)fluoranthene			ND 8.92			
	Benzo(g,h,i)perylene			ND 8.92			
	Benzo(k)fluoranthene			ND 8.92			
	Chrysene			ND 8.92			
	Dibenz(a,h)Anthracene			ND 8.92			
	Fluoranthene			ND 8.92			
	Fluorene			ND 8.92			
	Indeno(1,2,3-c,d)Pyrene			ND 8.92			
	2-Methylnaphthalene			ND 8.92			
	1-Methylnaphthalene			ND 8.92			
	Naphthalene			ND 8.92			
	Phenanthrene			ND 8.92			
	Pyrene			ND 8.92			

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Brent Barron, II  
Odessa Laboratory Manager



# Certificate of Analysis Summary 384421

## Eco-Logical Environmental, Midland, TX



Project Id:

Contact: Scott Springer

Project Location:

Date Received in Lab: Thu Aug-05-10 11:25 am

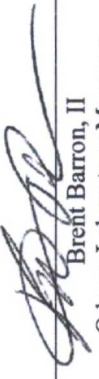
Report Date: 18-AUG-10

Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	384421-001	384421-002	384421-003	384421-004	384421-005	384421-006
	Field Id:	Floor East	Floor West	West, West Wall	West, East Wall	West, North Wall	West, South Wall
	Depth:	6- ft	6- ft	6- ft	6- ft	6- ft	6- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00
TPH By SW8015 Mod	Extracted:	Aug-06-10 09:30	Aug-06-10 09:30	Aug-06-10 09:30	Aug-06-10 09:30	Aug-06-10 09:30	Aug-06-10 09:30
	Analyzed:	Aug-06-10 14:01	Aug-06-10 14:21	Aug-06-10 14:42	Aug-06-10 15:02	Aug-06-10 15:22	Aug-06-10 15:43
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	C6-C12 Gasoline Range Hydrocarbons	ND 15.6	ND 79.6	8090 800	62.2 15.4	ND 155	ND 154
C12-C28 Diesel Range Hydrocarbons		136 15.6	998 79.6	14600 800	123 15.4	1230 155	2070 154
C28-C35 Oil Range Hydrocarbons		ND 15.6	ND 79.6	ND 800	ND 15.4	ND 155	ND 154
Total TPH		136 15.6	998 79.6	22690 800	185 15.4	1230 155	2070 154

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Brent Barron, II  
Odessa Laboratory Manager



# Certificate of Analysis Summary 384421

## Eco-Logical Environmental, Midland, TX



**Project Id:**  
**Contact:** Scott Springer  
**Project Location:**

**Date Received in Lab:** Thu Aug-05-10 11:25 am  
**Report Date:** 18-AUG-10

**Project Manager:** Brent Barron, II

Analysis Requested	Lab Id:	384421-001	384421-002	384421-003	384421-004	384421-005	384421-006
	Field Id:	Floor East	Floor West	West, West Wall	West, East Wall	West, North Wall	West, South Wall
Percent Moisture	Depth:	6- ft	6- ft	6- ft	6- ft	6- ft	6- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00	Aug-04-10 00:00
	Extracted:	Aug-06-10 08:37	Aug-06-10 08:37	Aug-06-10 08:37	Aug-06-10 08:37	Aug-06-10 08:37	Aug-06-10 08:37
Percent Moisture	Analyzed:	%	%	%	%	%	%
	Units/RL:	3.92 1.00	6.25 1.00	6.75 1.00	3.09 1.00	3.57 1.00	2.61 1.00

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Brent Barron, II  
Odessa Laboratory Manager



## Flagging Criteria

- 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
- MDL** Method Detection Limit
- PQL** Practical Quantitation Limit
- \* Outside XENCO's scope of NELAC Accreditation.

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(361) 884-0371	(361) 884-9116



## Form 2 - Surrogate Recoveries

Project Name: Line 2B

Work Orders : 384421,

Project ID:

Lab Batch #: 818482

Sample: 570380-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/10/10 09:37

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0313	0.0300	104	80-120	
4-Bromofluorobenzene	0.0343	0.0300	114	80-120	

Lab Batch #: 818482

Sample: 570380-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/10/10 10:00

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0341	0.0300	114	80-120	

Lab Batch #: 818482

Sample: 570380-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/10/10 11:34

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0248	0.0300	83	80-120	
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 818482

Sample: 384421-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/10/10 12:30

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0257	0.0300	86	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Lab Batch #: 818482

Sample: 384421-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/10/10 12:53

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

\* 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: Line 2B

Work Orders : 384421,

Project ID:

Lab Batch #: 818482

Sample: 384421-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/10/10 13:16

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Lab Batch #: 818482

Sample: 384421-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/10/10 14:02

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0249	0.0300	83	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

Lab Batch #: 818482

Sample: 384421-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/10/10 14:49

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0246	0.0300	82	80-120	

Lab Batch #: 818482

Sample: 384421-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/10/10 15:12

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0242	0.0300	81	80-120	
4-Bromofluorobenzene	0.0253	0.0300	84	80-120	

Lab Batch #: 818700

Sample: 570518-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/12/10 14:42

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

\* 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: Line 2B

Work Orders : 384421,

Project ID:

Lab Batch #: 818700

Sample: 570518-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/12/10 15:06

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 818700

Sample: 570518-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/12/10 16:16

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0259	0.0300	86	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 818700

Sample: 384421-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/12/10 21:11

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0252	0.0300	84	80-120	
4-Bromofluorobenzene	0.0408	0.0300	136	80-120	**

Lab Batch #: 818700

Sample: 384421-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/12/10 23:08

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0202	0.0300	67	80-120	**
4-Bromofluorobenzene	0.0447	0.0300	149	80-120	**

\* 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: Line 2B

Work Orders : 384421,

Project ID:

Lab Batch #: 819177

Sample: 570635-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/17/10 11:49

### SURROGATE RECOVERY STUDY

SVOA PAHs List by EPA 8270C Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.53	1.67	92	30-115	
2-Fluorophenol	1.68	1.67	101	25-121	
Nitrobenzene-d5	1.63	1.67	98	23-120	
Phenol-d6	1.44	1.67	86	24-113	
Terphenyl-D14	1.66	1.67	99	18-137	
2,4,6-Tribromophenol	1.63	1.67	98	19-122	

Lab Batch #: 819177

Sample: 570635-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/17/10 12:12

### SURROGATE RECOVERY STUDY

SVOA PAHs List by EPA 8270C Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.13	1.66	68	30-115	
2-Fluorophenol	1.24	1.66	75	25-121	
Nitrobenzene-d5	1.18	1.66	71	23-120	
Phenol-d6	1.07	1.66	64	24-113	
Terphenyl-D14	1.14	1.66	69	18-137	
2,4,6-Tribromophenol	1.33	1.66	80	19-122	

Lab Batch #: 819177

Sample: 570635-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/17/10 12:36

### SURROGATE RECOVERY STUDY

SVOA PAHs List by EPA 8270C Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorobiphenyl	1.38	1.66	83	30-115	
2-Fluorophenol	1.51	1.66	91	25-121	
Nitrobenzene-d5	1.46	1.66	88	23-120	
Phenol-d6	1.32	1.66	80	24-113	
Terphenyl-D14	1.40	1.66	84	18-137	
2,4,6-Tribromophenol	1.67	1.66	101	19-122	

\* 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: Line 2B

Work Orders : 384421,

Project ID:

Lab Batch #: 819177

Sample: 384421-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/17/10 13:47

## SURROGATE RECOVERY STUDY

SVOA PAHs List by EPA 8270C	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
2-Fluorobiphenyl	0.649	1.66	39	30-115	
2-Fluorophenol	ND	1.66	0	25-121	***
Nitrobenzene-d5	2.60	1.66	157	23-120	***
Phenol-d6	0.649	1.66	39	24-113	
Terphenyl-D14	0.566	1.66	34	18-137	
2,4,6-Tribromophenol	ND	1.66	0	19-122	***

Lab Batch #: 817881

Sample: 570022-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/06/10 12:01

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	117	99.7	117	70-135	
o-Terphenyl	52.7	49.9	106	70-135	

Lab Batch #: 817881

Sample: 570022-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/06/10 12:20

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	123	100	123	70-135	
o-Terphenyl	58.4	50.2	116	70-135	

Lab Batch #: 817881

Sample: 570022-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/06/10 12:40

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	110	99.7	110	70-135	
o-Terphenyl	58.2	49.9	117	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: Line 2B

Work Orders : 384421,

Project ID:

Lab Batch #: 817881

Sample: 384421-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 14:01

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	99.9	116	70-135	
o-Terphenyl	60.7	50.0	121	70-135	

Lab Batch #: 817881

Sample: 384421-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 14:21

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	99.5	98	70-135	
o-Terphenyl	58.1	49.8	117	70-135	

Lab Batch #: 817881

Sample: 384421-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 14:42

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.1	99.5	74	70-135	
o-Terphenyl	40.3	49.8	81	70-135	

Lab Batch #: 817881

Sample: 384421-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 15:02

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.5	107	70-135	
o-Terphenyl	53.3	49.8	107	70-135	

Lab Batch #: 817881

Sample: 384421-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 15:22

## SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.5	107	70-135	
o-Terphenyl	60.1	49.8	121	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: Line 2B

Work Orders : 384421,

Project ID:

Lab Batch #: 817881

Sample: 384421-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 15:43

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.9	101	70-135	
o-Terphenyl	56.1	50.0	112	70-135	

Lab Batch #: 817881

Sample: 384446-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 19:42

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	100	120	70-135	
o-Terphenyl	61.6	50.2	123	70-135	

Lab Batch #: 817881

Sample: 384446-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/10 20:02

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	99.6	114	70-135	
o-Terphenyl	58.0	49.8	116	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: Line 2B**

Work Order #: 384421

Analyst: ASA

Lab Batch ID: 818482

Sample: 570380-1-BKS

Units: mg/kg

Project ID:

Date Analyzed: 08/10/2010

Matrix: Solid

Date Prepared: 08/10/2010

Batch #: 1

**BLANK/BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

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]	Blank Spike Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		ND	0.1000	0.0917	92	0.1	0.0955	96	4	70-130	35	
Toluene		ND	0.1000	0.0871	87	0.1	0.0905	91	4	70-130	35	
Ethylbenzene		ND	0.1000	0.0938	94	0.1	0.0972	97	4	71-129	35	
m,p-Xylenes		ND	0.2000	0.1884	94	0.2	0.1950	98	3	70-135	35	
o-Xylene		ND	0.1000	0.0924	92	0.1	0.0962	96	4	71-133	35	

Analyst: ASA

Lab Batch ID: 818700

Sample: 570518-1-BKS

Date Prepared: 08/12/2010

Batch #: 1

Date Analyzed: 08/12/2010

Matrix: Solid

**BLANK/BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

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]	Blank Spike Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		ND	0.1000	0.0950	95	0.1	0.1115	112	16	70-130	35	
Toluene		ND	0.1000	0.0898	90	0.1	0.1059	106	16	70-130	35	
Ethylbenzene		ND	0.1000	0.0956	96	0.1	0.1119	112	16	71-129	35	
m,p-Xylenes		ND	0.2000	0.1925	96	0.2	0.2249	112	16	70-135	35	
o-Xylene		ND	0.1000	0.0971	97	0.1	0.1117	112	14	71-133	35	

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

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

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

All results are based on MDL and Validated for QC Purposes



**Project Name: Line 2B**

**Work Order #: 384421**

**Analyst: LATCOR**

**Lab Batch ID: 818183**

**Sample: 818183-1-BKS**

**Units: mg/kg**

**Project ID:**

**Date Analyzed: 08/09/2010**

**Matrix: Solid**

**Date Prepared: 08/09/2010**

**Batch #: 1**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Units: mg/kg											
Analytes	Anions by E300										
	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
	ND	10.0	8.98	90	10	9.01	90	0	75-125	20	
Chloride											

Relative Percent Difference  $RPD = 200 * [(C-F)/(C+F)]$   
Blank Spike Recovery  $[D] = 100 * (C)/[B]$   
Blank Spike Duplicate Recovery  $[G] = 100 * (F)/[E]$   
All results are based on MDL and Validated for QC Purposes

**Project Name: Line 2B**

Work Order #: 384421

Analyst: DAE

Date Prepared: 08/13/2010

Project ID:

Date Analyzed: 08/17/2010

Lab Batch ID: 819177

Sample: 570635-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

SVOA PAHs List by EPA 8270C	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
Analytes											
Acenaphthene	ND	1.66	1.31	79	1.66	1.60	96	20	48-118	25	
Acenaphthylene	ND	1.66	1.32	80	1.66	1.61	97	20	44-118	25	
Anthracene	ND	1.66	1.35	81	1.66	1.71	103	24	53-119	25	
Benzo(a)anthracene	ND	1.66	1.36	82	1.66	1.69	102	22	53-124	25	
Benzo(a)pyrene	ND	1.66	1.50	90	1.66	1.88	113	22	54-128	25	
Benzo(b)fluoranthene	ND	1.66	1.65	99	1.66	2.03	122	21	45-141	25	
Benzo(g,h,i)perylene	ND	1.66	1.46	88	1.66	1.87	113	25	48-132	25	
Benzo(k)fluoranthene	ND	1.66	1.24	75	1.66	1.58	95	24	51-123	25	
Chrysene	ND	1.66	1.32	80	1.66	1.62	98	20	57-117	25	
Dibenz(a,h)Anthracene	ND	1.66	1.56	94	1.66	1.96	118	23	52-134	25	
Fluoranthene	ND	1.66	1.39	84	1.66	1.73	104	22	52-126	25	
Fluorene	ND	1.66	1.34	81	1.66	1.64	99	20	48-121	25	
Indeno(1,2,3-c,d)Pyrene	ND	1.66	1.54	93	1.66	1.95	117	23	49-133	25	
2-Methylnaphthalene	ND	1.66	1.17	70	1.66	1.45	87	21	25-175	25	
1-Methylnaphthalene	ND	1.66	1.28	77	1.66	1.58	95	21	25-175	25	
Naphthalene	ND	1.66	1.27	77	1.66	1.56	94	20	46-114	25	
Phenanthrene	ND	1.66	1.34	81	1.66	1.67	101	22	57-115	25	
Pyrene	ND	1.66	1.16	70	1.66	1.45	87	22	53-122	25	

Relative Percent Difference  $RPD = 200 * [(C-F)/(C+F)]$   
Blank Spike Recovery  $[D] = 100 * (C)/[B]$   
Blank Spike Duplicate Recovery  $[G] = 100 * (F)/[E]$   
All results are based on MDL and Validated for QC Purposes

**Project Name: Line 2B**

**Work Order #: 384421**

**Analyst: BEV**

**Lab Batch ID: 817881**

**Sample: 570022-1-BKS**

**Date Prepared: 08/06/2010**

**Batch #: 1**

**Project ID:**

**Date Analyzed: 08/06/2010**

**Matrix: Solid**

**Units: mg/kg**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Analytes	Units: mg/kg										
	TPH By SW8015 Mod										
	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	997	1250	125	1000	1150	115	8	70-135	35	
C12-C28 Diesel Range Hydrocarbons	ND	997	1040	104	1000	964	96	8	70-135	35	

Relative Percent Difference RPD =  $200 * [(C-F) / (C+F)]$   
Blank Spike Recovery [D] =  $100 * (C) / [B]$   
Blank Spike Duplicate Recovery [G] =  $100 * (F) / [E]$   
All results are based on MDL and Validated for QC Purposes





## Form 3 - MS Recoveries



Project Name: Line 2B

Work Order #: 384421

Lab Batch #: 818183

Date Analyzed: 08/09/2010

Date Prepared: 08/09/2010

Project ID:

Analyst: LATCOR

QC- Sample ID: 384419-001 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

### MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	9.37	102	108	97	75-125	

Matrix Spike Percent Recovery [D] =  $100 \times (C-A)/B$

Relative Percent Difference [E] =  $200 \times (C-A)/(C+B)$

All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Project Name: Line 2B

Work Order #: 384421

Lab Batch ID: 818482

Date Analyzed: 08/10/2010

Reporting Units: mg/kg

Project ID:

QC- Sample ID: 384421-001 S

Batch #: 1 Matrix: Soil

Date Prepared: 08/10/2010

Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
Reporting Units: mg/kg	BTEX by EPA 8021B										
	Analytes										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Benzene	ND	0.1030	0.0901	87	0.1051	0.0870	83	4	70-130	35
	Toluene	ND	0.1030	0.0822	80	0.1051	0.0797	76	3	70-130	35
	Ethylbenzene	ND	0.1030	0.0821	80	0.1051	0.0799	76	3	71-129	35
	m,p-Xylenes	ND	0.2061	0.1633	79	0.2103	0.1588	76	3	70-135	35
	o-Xylene	ND	0.1030	0.0835	81	0.1051	0.0812	77	3	71-133	35

Lab Batch ID: 817881

Date Analyzed: 08/06/2010

Reporting Units: mg/kg

QC- Sample ID: 384446-001 S

Batch #: 1 Matrix: Soil

Date Prepared: 08/06/2010

Analyst: BEV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
Reporting Units: mg/kg	TPH By SW8015 Mod										
	Analytes										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag

Matrix Spike Percent Recovery  $[D] = 100 \times (C-A)/B$   
Relative Percent Difference  $RPD = 200 \times (C-F)/(C+F)$

Matrix Spike Duplicate Percent Recovery  $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable  
N = See Narrative, EQL = Estimated Quantitation Limit



## Sample Duplicate Recovery



Project Name: Line 2B

Work Order #: 384421

Lab Batch #: 818183

Date Analyzed: 08/09/2010

QC- Sample ID: 384419-001 D

Reporting Units: mg/kg

Date Prepared: 08/09/2010

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	9.37	9.02	4	20	

Lab Batch #: 817728

Date Analyzed: 08/06/2010

QC- Sample ID: 384419-001 D

Reporting Units: %

Date Prepared: 08/06/2010

Batch #: 1

Analyst: JLG

Matrix: Soil

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	2.01	1.96	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





- ☐ 4143 Greenbriar Drive, Stafford, TX 77477 281-240-4200
- ☐ 5332 Blackberry Drive, San Antonio, TX 78238 210-508-3334
- ☐ 9701 Harry Hines Blvd., Dallas, TX 75220 214-902-0300

ANALYSIS REQUEST & CHAIN OF CUSTODY RECORD

12600 West I-20 East, Odessa, TX 79755 432-563-1800

842 Cantwell, Corpus Christi, TX 78408 361-884-0371

Serial #: 250337

Page of

Lab Only: 384421

Company City: LEO-LOGICAL ENV. SERVICES

Project Name-Location: LINE 2B

Previously done at XENCO

Project ID: 452-520-7535

Phone: 452-520-7535

Proj State: TX, AL, FL, GA, LA, MS, NC, NJ, PA, SC, TN, UT Other

Prof. Manager (PM): Scott Springer

e-Mail Results to: leo-logical.com

Invoice to: SUG

Accounting: ☐ Inc. Invoice with Final Report

Invoice must have a P.O. Bill

Quote/Pricing: P.O. No: ☐ Call for P.O.

Reg Program: UST DRY-CLEAN Land-Fill Waste-Disp NPDES DW TRRP

QAPP Per-Contract CLP AFCEE NAVY DOE DOD USACE OTHER:

Special DLs (GW DW QAPP MDLs RLs See Lab PM Included Call PM)

Sampler Name: Scott Springer

Signature: Scott Springer

Sample ID

Sampling Date

Time

Depth

Matrix

Composite

Grab

# Containers

Container Size

Container Type

Preservatives

Relinquished by (Initials and Sign)

Date & Time

Relinquished to (Initials and Sign)

Date & Time

Total Containers per COC

Cooler Temp

otherwise agreed on writing. Reports are the Intellectual Property of XENCO

until paid. Samples will be held 30 days after final report is e-mailed unless

hereby requested. Rush Charges and Collection Fees are pre-approved if

needed.

Preservatives: Various (V), HCl pH<2 (H), H2SO4 pH<2 (S), HNO3 pH<2 (N), Ascorbic Acid/NaOH (A), Zinc Acetate/NaOH (Z), (Cool, <4C) (C), None (NA), See Label (L), Other (O)

Cont. Size: 4oz (4), 8oz (8), 32oz (32), 40ml VOA (40), 1L (1), 500ml (5), Tedlar Bag (B), Various (V), Other

Cont. Type: Glass Amb (A), Glass Clear (C), Plastic (P), Various (V)

Matrix: Air (A), Product (P), Solid(S), Water (W), Liquid (L)

Notice: Signature of this document and relinquishment of these samples constitutes a valid purchase order from client company to Xenco Laboratories and its affiliates.

subcontractors and assigns under Xenco's standard terms and conditions of service unless previously negotiated under a fully executed client contract.

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Labels no seals

Lab Only: 384421

TAT: ASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d Standard TAT is project specific.

It is typically 5-7 Working Days for level II and 10+ Working days for level III and IV data.

Remarks

Sample Clean-ups are pre-approved as needed

Hold Samples (Surcharges will apply and are pre-approved)

Addn: PAH above mg/L W, mg/Kg S Highest Hk

TATASAP 5h 12h 24h 48h 3d 5d 7d 10d 21d

HOLD PAH ON HIGHEST TPH

EDB/DBCP

SPL - TCLP (Metals VOCs SVOCs Pest. Herb. PCBs)

Metals: RCRA-8 RCRA-4 Pb 13PP 23TAL Appdx 1 Appdx 2

OC Pesticides PCBs Herbicides OP Pesticides

SVOCs: Full-List DW BNAE TCL PP Appdx-2 CALL

TX-1005 DRO GRO MA EPH MA VPH

PAHs

VOCs PP TCL DW Appdx-1 Appdx-2 CALL Other

VOCs: Full-List BTEX MTBE EIOH Oxyg VOCs VOAs

Chlorides

1

2

3

4

5

6

7

8

9

10

1

2

3

4

5

6

7

8

9

10

1

2

3

4

5

6



**XENCO Laboratories**

Atlanta, Boca Raton, Corpus Christi, Dallas  
Houston, Miami, Odessa, Philadelphia  
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

**Prelogin / Nonconformance Report - Sample Log-In**

Client: Ecological  
Date/Time: 8.5.10 9:35  
Lab ID #: 384421  
Initials: AL

**Sample Receipt Checklist**

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	<u>N/A</u>	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	No	<u>N/A</u>	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>-3.1</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

**Nonconformance Documentation**

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

Check all that apply: ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.  
☐ Initial and Backup Temperature confirm out of temperature conditions  
☐ Client understands and would like to proceed with analysis

**Analytical Report 401423**  
**for**  
**Southern Union Gas Services- Monahans**

**Project Manager: Rose Slade**

**Line 2 B (West Side)**

**2010-055**

**27-DEC-10**



**Celebrating 20 Years of commitment to excellence in Environmental Testing Services**



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-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 (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), 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-TX)

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

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Xenco Phoenix (EPA Lab Code: AZ00901):

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Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code:AZ000989): Arizona (AZ0758)





27-DEC-10

Project Manager: **Rose Slade**  
**Southern Union Gas Services- Monahans**  
1507 W. 15th Street  
Monahans, TX 79756

Reference: XENCO Report No: **401423**  
**Line 2 B (West Side)**  
Project Address: Jal, NM

**Rose Slade:**

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 401423. 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. 401423 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

***Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.***  
*Certified and approved by numerous States and Agencies.*

*A Small Business and Minority Status Company that delivers SERVICE and QUALITY*

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## Sample Cross Reference 401423



Southern Union Gas Services- Monahans, Monahans, TX

Line 2 B (West Side)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
East Floor	S	Dec-21-10 11:10		401423-001
East Wall	S	Dec-21-10 11:15		401423-002
Middle Floor	S	Dec-21-10 11:20		401423-003
South Wall	S	Dec-21-10 11:25		401423-004
North Wall	S	Dec-21-10 11:30		401423-005
West Floor	S	Dec-21-10 11:35		401423-006
West Wall	S	Dec-21-10 11:40		401423-007



## CASE NARRATIVE

*Client Name: Southern Union Gas Services- Monahans*

*Project Name: Line 2 B (West Side)*



*Project ID: 2010-055*

*Work Order Number: 401423*

*Report Date: 27-DEC-10*

*Date Received: 12/21/2010*

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**Sample receipt non conformances and Comments:**

None

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**Sample receipt Non Conformances and Comments per Sample:**

None

**Analytical Non Conformances and Comments:**

Batch: LBA-837528 BTEX by EPA 8021B

SW8021BM

Batch 837528, Benzene, Ethylbenzene, Toluene, m\_p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Samples affected are: 401423-005, -002, -006, -007, -001, -004, -003.

The Laboratory Control Sample for Toluene, Benzene, Ethylbenzene, m\_p-Xylenes , o-Xylene is within laboratory Control Limits





# Certificate of Analysis Summary 401423

## Southern Union Gas Services- Monahans, Monahans, TX

Project Name: Line 2 B (West Side)

Project Id: 2010-055

Contact: Rose Slade

Project Location: Jal, NM

Date Received in Lab: Tue Dec-21-10 04:40 pm

Report Date: 27-DEC-10

Project Manager: Brent Barron, II



<i>Analysis Requested</i>		Lab Id:	401423-001	401423-002	401423-003	401423-004	401423-005	401423-006
		Field Id:						
		Depth:						
		Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sampled:	Dec-21-10 11:10	Dec-21-10 11:15	Dec-21-10 11:20	Dec-21-10 11:25	Dec-21-10 11:30	Dec-21-10 11:35
Anions by E300	Extracted:							
	Analyzed:							
	Units/RL:							
Chloride			58.3	4.29	11.3	10.1	24.6	9.55
			mg/kg	RL	mg/kg	mg/kg	mg/kg	mg/kg
			4.55		4.38	4.33	4.47	4.55
BTEX by EPA 8021B	Extracted:							
	Analyzed:							
	Units/RL:							
Benzene			Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15
			mg/kg	RL	mg/kg	mg/kg	mg/kg	mg/kg
			0.0011	0.0010	0.0011	0.0010	0.0011	0.0011
Toluene			Dec-23-10 17:00	Dec-23-10 17:23	Dec-23-10 17:46	Dec-23-10 18:09	Dec-23-10 18:33	Dec-23-10 18:56
			mg/kg	RL	mg/kg	mg/kg	mg/kg	mg/kg
			0.0022	0.0020	0.0021	0.0021	0.0021	0.0022
Ethylbenzene								
			Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15
			mg/kg	RL	mg/kg	mg/kg	mg/kg	mg/kg
m_p-Xylenes			0.0011	0.0010	0.0011	0.0010	0.0011	0.0011
			Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15
o-Xylene			0.0022	0.0020	0.0021	0.0021	0.0021	0.0022
			Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15
Total Xylenes			0.0011	0.0010	0.0011	0.0010	0.0011	0.0011
			Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15
Total BTEX			0.0011	0.0010	0.0011	0.0010	0.0011	0.0011
			Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15	Dec-22-10 14:15
Percent Moisture		Extracted:						
TPH By SW8015 Mod	Analyzed:							
	Units/RL:							
			7.73	2.19	4.01	2.98	6.14	7.78
Percent Moisture			1.00	1.00	1.00	1.00	1.00	1.00
			%	%	%	%	%	%
			Dec-22-10 17:00	Dec-22-10 17:00	Dec-22-10 17:00	Dec-22-10 17:00	Dec-22-10 17:00	Dec-22-10 17:00
C6-C12 Gasoline Range Hydrocarbons	Extracted:							
	Analyzed:							
	Units/RL:							
C12-C28 Diesel Range Hydrocarbons			Dec-22-10 08:45	Dec-22-10 08:45	Dec-22-10 08:45	Dec-22-10 08:45	Dec-22-10 08:45	Dec-22-10 08:45
			mg/kg	RL	mg/kg	mg/kg	mg/kg	mg/kg
			16.3	15.3	15.6	15.4	16.0	16.3
C28-C35 Oil Range Hydrocarbons			20.4	15.3	15.6	15.4	16.0	16.3
			mg/kg	RL	mg/kg	mg/kg	mg/kg	mg/kg
			16.3	15.3	15.6	15.4	16.0	16.3
Total TPH			20.4	15.3	15.6	15.4	16.0	16.3
			mg/kg	RL	mg/kg	mg/kg	mg/kg	mg/kg
			16.3	15.3	15.6	15.4	16.0	16.3

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



Certificate of Analysis Summary 401423  
Southern Union Gas Services- Monahans, Monahans, TX  
Project Name: Line 2 B (West Side)



Project Id: 2010-055  
Contact: Rose Slade  
Project Location: Jal, NM

Date Received in Lab: Tue Dec-21-10 04:40 pm  
Report Date: 27-DEC-10  
Project Manager: Brent Barron, II

Analysis Requested	Lab Id:	401423-007			
	Field Id:	West Wall			
	Depth:				
	Matrix:	SOIL			
	Sampled:	Dec-21-10 11:40			
Anions by E300	Extracted:				
	Analyzed:	Dec-22-10 09:07			
	Units/RL:	mg/kg RL			
Chloride		10.2 4.54			
BTEX by EPA 8021B	Extracted:	Dec-22-10 14:15			
	Analyzed:	Dec-23-10 19:20			
	Units/RL:	mg/kg RL			
	Benzene	ND 0.0011			
	Toluene	ND 0.0021			
Ethylbenzene		ND 0.0011			
m_p-Xylenes		ND 0.0021			
o-Xylene		ND 0.0011			
Total Xylenes		ND 0.0011			
Total BTEX		ND 0.0011			
Percent Moisture	Extracted:				
	Analyzed:	Dec-22-10 17:00			
	Units/RL:	% RL			
Percent Moisture		7.39 1.00			
TPH By SW8015 Mod	Extracted:	Dec-22-10 08:45			
	Analyzed:	Dec-22-10 13:38			
	Units/RL:	mg/kg RL			
C6-C12 Gasoline Range Hydrocarbons		ND 16.1			
C12-C28 Diesel Range Hydrocarbons		ND 16.1			
C28-C35 Oil Range Hydrocarbons		ND 16.1			
Total TPH		ND 16.1			

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



## Flagging Criteria

- 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
- MDL** Method Detection Limit
- PQL** Practical Quantitation Limit
- \* Outside XENCO's scope of NELAC Accreditation.

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(432) 563-1800	(432) 563-1713
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## Form 2 - Surrogate Recoveries

Project Name: Line 2 B (West Side)

Work Orders : 401423,

Project ID: 2010-055

Lab Batch #: 837528

Sample: 592143-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/23/10 15:26

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 837528

Sample: 592143-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/23/10 15:49

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0300	0.0300	100	80-120	

Lab Batch #: 837528

Sample: 592143-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/23/10 16:36

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 837528

Sample: 401423-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 17:00

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0292	0.0300	97	80-120	

Lab Batch #: 837528

Sample: 401423-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 17:23

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

\* 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: Line 2 B (West Side)

Work Orders : 401423,

Project ID: 2010-055

Lab Batch #: 837528

Sample: 401423-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 17:46

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0298	0.0300	99	80-120	

Lab Batch #: 837528

Sample: 401423-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 18:09

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

Lab Batch #: 837528

Sample: 401423-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 18:33

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 837528

Sample: 401423-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 18:56

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0310	0.0300	103	80-120	

Lab Batch #: 837528

Sample: 401423-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 19:20

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

\* 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: Line 2 B (West Side)

Work Orders : 401423,

Project ID: 2010-055

Lab Batch #: 837528

Sample: 401423-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 20:53

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0316	0.0300	105	80-120	

Lab Batch #: 837528

Sample: 401423-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/23/10 21:17

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

Lab Batch #: 837235

Sample: 591978-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/22/10 10:48

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	72.9	100	73	70-135	
o-Terphenyl	35.8	50.2	71	70-135	

Lab Batch #: 837235

Sample: 591978-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/22/10 11:07

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	73.1	99.7	73	70-135	
o-Terphenyl	36.4	49.9	73	70-135	

Lab Batch #: 837235

Sample: 591978-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 12/22/10 11:25

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.1	100	77	70-135	
o-Terphenyl	40.8	50.0	82	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: Line 2 B (West Side)

Work Orders : 401423,

Project ID: 2010-055

Lab Batch #: 837235

Sample: 401423-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 11:44

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.9	100	79	70-135	
o-Terphenyl	41.8	50.0	84	70-135	

Lab Batch #: 837235

Sample: 401423-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 12:03

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.6	99.7	78	70-135	
o-Terphenyl	39.7	49.9	80	70-135	

Lab Batch #: 837235

Sample: 401423-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 12:21

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.7	99.7	81	70-135	
o-Terphenyl	42.0	49.9	84	70-135	

Lab Batch #: 837235

Sample: 401423-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 12:40

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	75.2	99.8	75	70-135	
o-Terphenyl	38.8	49.9	78	70-135	

Lab Batch #: 837235

Sample: 401423-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 13:00

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.1	99.9	76	70-135	
o-Terphenyl	39.9	50.0	80	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: Line 2 B (West Side)

Work Orders : 401423,

Project ID: 2010-055

Lab Batch #: 837235

Sample: 401423-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 13:19

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.6	100	79	70-135	
o-Terphenyl	41.4	50.1	83	70-135	

Lab Batch #: 837235

Sample: 401423-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 13:38

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.7	99.7	78	70-135	
o-Terphenyl	40.8	49.9	82	70-135	

Lab Batch #: 837235

Sample: 401423-007 S / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 15:50

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	79.1	99.6	79	70-135	
o-Terphenyl	40.7	49.8	82	70-135	

Lab Batch #: 837235

Sample: 401423-007 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 12/22/10 16:09

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.1	99.7	77	70-135	
o-Terphenyl	37.8	49.9	76	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: Line 2 B (West Side)**

**Work Order #: 401423**

**Analyst: ASA**

**Lab Batch ID: 837528**

**Sample: 592143-1-BKS**

**Units: mg/kg**

**Project ID: 2010-055**

**Date Analyzed: 12/23/2010**

**Matrix: Solid**

**Date Prepared: 12/22/2010**

**Batch #: 1**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY													
Units: mg/kg	BTEX by EPA 8021B												
	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	
		Benzene	ND	0.1000	0.0905	91	0.1	0.0922	92	2	70-130	35	
		Toluene	ND	0.1000	0.0868	87	0.1	0.0883	88	2	70-130	35	
		Ethylbenzene	ND	0.1000	0.0854	85	0.1	0.0867	87	2	71-129	35	
		m_p-Xylenes	ND	0.2000	0.1780	89	0.2	0.1801	90	1	70-135	35	
		o-Xylene	ND	0.1000	0.0874	87	0.1	0.0885	89	1	71-133	35	

**Analyst: LATCOR**

**Lab Batch ID: 837118**

**Sample: 837118-1-BKS**

**Units: mg/kg**

**Date Prepared: 12/22/2010**

**Batch #: 1**

**Date Analyzed: 12/22/2010**

**Matrix: Solid**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Units: mg/kg											
Analytes	Anions by E300										
	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
Chloride	ND	10.0	8.89	89	10	8.65	87	3	75-125	20	

Relative Percent Difference RPD =  $200 * |(C-F)/(C+F)|$   
Blank Spike Recovery [D] =  $100 * (C)/[B]$   
Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$   
All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries

Project Name: Line 2 B (West Side)

Work Order #: 401423

Analyst: BEV

Lab Batch ID: 837235

Sample: 591978-1-BKS

Units: mg/kg

Project ID: 2010-055

Date Analyzed: 12/22/2010

Matrix: Solid

Date Prepared: 12/22/2010

Batch #: 1

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Units: mg/kg											
Analytes	TPH By SW8015 Mod										
	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	1000	922	92	997	929	93	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	ND	1000	912	91	997	884	89	3	70-135	35	

Relative Percent Difference RPD =  $200 * |(C-F)/(C+F)|$   
Blank Spike Recovery [D] =  $100 * (C)/[B]$   
Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$   
All results are based on MDL and Validated for QC Purposes

# Form 3 - MS Recoveries

Project Name: Line 2 B (West Side)

Work Order #: 401423

Lab Batch #: 837118

Date Analyzed: 12/22/2010

Date Prepared: 12/22/2010

Project ID: 2010-055

Analyst: LATCOR

QC- Sample ID: 401423-001 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

## MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	58.3	108	149	84	75-125	

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

BRL - Below Reporting Limit

Project Name: Line 2 B (West Side)

Work Order #: 401423

Lab Batch ID: 837528

Date Analyzed: 12/23/2010

Reporting Units: mg/kg

Project ID: 2010-055

QC- Sample ID: 401423-001 S

Batch #: 1 Matrix: Soil

Date Prepared: 12/22/2010

Analyst: ASA

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

Analytes	BTEX by EPA 8021B										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ND	0.1077	0.0702	65	0.1082	0.0711	66	1	70-130	35	X
Toluene	ND	0.1077	0.0667	62	0.1082	0.0677	63	1	70-130	35	X
Ethylbenzene	ND	0.1077	0.0653	61	0.1082	0.0660	61	1	71-129	35	X
m_p-Xylenes	ND	0.2155	0.1139	53	0.2163	0.1252	58	9	70-135	35	X
o-Xylene	ND	0.1077	0.0661	61	0.1082	0.0668	62	1	71-133	35	X

Lab Batch ID: 837235

Date Analyzed: 12/22/2010

Reporting Units: mg/kg

QC- Sample ID: 401423-007 S

Batch #: 1 Matrix: Soil

Date Prepared: 12/22/2010

Analyst: BEV

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY**

Analytes	TPH By SW8015 Mod										
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	ND	1080	1070	99	1080	1050	97	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	ND	1080	820	76	1080	806	75	2	70-135	35	

Matrix Spike Percent Recovery  $[D] = 100 \times (C-A)/B$   
Relative Percent Difference  $RPD = 200 \times (C-F)/(C+F)$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable  
N = See Narrative, EQL = Estimated Quantitation Limit

Matrix Spike Duplicate Percent Recovery  $[G] = 100 \times (F-A)/E$





## Sample Duplicate Recovery



Project Name: Line 2 B (West Side)

Work Order #: 401423

Lab Batch #: 837118

Project ID: 2010-055

Date Analyzed: 12/22/2010 09:07

Date Prepared: 12/22/2010

Analyst: LATCOR

QC- Sample ID: 401423-001 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	58.3	59.2	2	20	

Lab Batch #: 837238

Date Analyzed: 12/22/2010 17:00

Date Prepared: 12/22/2010

Analyst: WRU

QC- Sample ID: 401423-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	7.73	7.99	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**  
Atlanta, Boca Raton, Corpus Christi, Dallas  
Houston, Miami, Odessa, Philadelphia  
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist  
Document No.: SYS-SRC  
Revision/Date: No. 01, 5/27/2010  
Effective Date: 6/1/2010 Page 1 of 1

### Prelogin / Nonconformance Report - Sample Log-In

Client: Southern Union Gas  
Date/Time: 12-21-10 16:40  
Lab ID #: 401423  
Initials: AE

#### Sample Receipt Checklist

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and <u>bottles</u> ?	<u>Yes</u>	No	N/A	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	No	<u>N/A</u>	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>5.0</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

#### Nonconformance Documentation

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

Check all that apply: ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.  
☐ Initial and Backup Temperature confirm out of temperature conditions  
☐ Client understands and would like to proceed with analysis





Line 2B Release Site



Line 2B Release Site - Initial Response Activities





Line 2B - West Excavation



Line 2B - West Excavation (looking North-northeast)





Line 2B Release Site - East Excavation (looking West)



Line 2B Release Site (following backfilling)