

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised October 10, 2003

Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

## Release Notification and Corrective Action

### OPERATOR

Initial Report ☐ Final Report ☒

Name of Company	Southern Union Gas Services, Ltd.	Contact	Rose Slade
Address	801 S. Loop 464, Monahans, TX, 79756	Telephone No.	432-940-5147
Facility Name: L-5 (8" Line) (RP-2334) Lea County Field Dept.	Facility Type	L-5 8"	Natural Gas Gathering

Surface Owner	State of New Mexico	Mineral Owner: State of New Mexico	Lease No.
---------------	---------------------	------------------------------------	-----------

### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	21	21S	37E					Lea

Latitude N32 27.436

Longitude W103 09.935

### NATURE OF RELEASE

Type of Release	Crude Oil, Produced water and Natural Gas	Volume of Release	5bbls	Volume Recovered	NONE
Source of Release	8" Natural Gas Pipeline	Date and Hour of Occurrence	Not known	Date and Hour of Discovery	10/14/09 12:15 p.m.
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Geoff Leking		
By Whom?	Rose Slade	Date and Hour:	10/14/09 2:50 p.m.		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken:

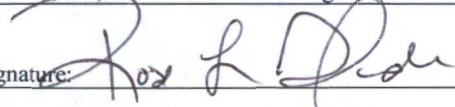

The 8" Natural gas pipeline developed a leak operating at approximately 7-8 psi on the pipeline. The line was clamped and has since been replaced.

Describe Area Affected and Cleanup Action Taken. Approximately 30x30 sq. ft. of pasture land was affected by the leak and temporary repair.

Remediation activities were conducted in accordance with the NMOCD's Guidelines on Spills, Leaks and Releases.

**Please see the attached Basin Environmental Services Technologies Remediation Summary and Site Closure Request for details of remedial activities and laboratory analytical results from confirmation soil sampling.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases, which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Rose L. Slade	Approved by District Supervisor:	
Title: EHS Compliance Specialist	Approval Date:	
E-mail Address: rose.slade@sug.com	Conditions of Approval:	Environmental Specialist
Date: 10-18-12	Phone: 432-940-5147(cell)	IRP-09-11-2334 10/18/12



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NOV 05 2009

HOBBSDO

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with Rule 116 on back  
side of form

### Release Notification and Corrective Action

#### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Southern Union Gas Services, Ltd.	Contact	Rose Slade
Address	P.O. Box 1226 Jal, N.M. 88252	Telephone No.	432-940-5147
Facility Name	Lea County Field Dept.	Facility Type	L-5 8" Natural Gas Gathering
Surface Owner: Millard Deck Estates		Mineral Owner:	Lease No.

#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	21	21S	37E					Lea

Latitude N32 27.436 Longitude W103 09.935

#### NATURE OF RELEASE

Type of Release : Crude Oil, Produced water and Natural Gas	Volume of Release: 5bbls.	Volume Recovered	NONE
Source of Release : 8" Natural Gas Pipeline	Date and Hour of Occurrence	Date and Hour of Discovery 10/14/09 12:15 p.m.	
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Jeff Lecking	
By Whom? Rose Slade	Date and Hour:	10/14/09 at 2:50 p.m.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.		

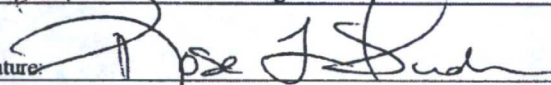
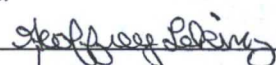
If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

The 8" Natural gas pipeline developed a leak operating at approximately 7-8 psi on the pipeline. The line was clamped and will be replaced at a later time.

Describe Area Affected and Cleanup Action Taken. Approximately 30x30 sq.ft. of pasture land was affected by the leak and temporary repair was done on the pipeline with replacement of pipeline to be done at a later date. Remediation started on 10/30/09 completed delamination on 11/3/09 and will sample per OCD guidelines. Final remediation will follow the NMOCD recommended guidelines for leaks and spills.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Rose L. Slade	Approved by  ENV. ENGINEER District Supervisor	
Title: EHS Compliance Specialist	Approval Date: 10/26/09	Expiration Date: 12/28/09
E-mail Address: rose.slade@sug.com	Conditions of Approval: DELINEATE TO CLEAN + 1. SUBMIT FINAL C-141	Attached <input type="checkbox"/>
Date: 10/21/09 Phone: 432-940-5147 (cell)	IRP. 09.11.2334	

\* Attach Additional Sheets If Necessary

FGRL 0931037520

# ***Basin Environmental Service Technologies, LLC***

3100 Plains Highway  
P. O. Box 301  
Lovington, New Mexico 88260

**jwlowry@basinenv.com**

Office: (575) 396-2378

Fax: (575) 396-1429



## **REMEDIATION SUMMARY & SITE CLOSURE REQUEST**

**SOUTHERN UNION GAS SERVICES**

**L-5 (8" Line) (1RP-2334)**

**HISTORICAL RELEASE SITE**

**Lea County, New Mexico**

**Unit Letter "O" (SW/SE), Section 21, Township 21 South, Range 37 East**

**Latitude 32° 27.436' North, Longitude 103° 09.935' West**

**NMOCD Reference # 1RP-2334**

Prepared For:

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

Prepared By:

Basin Environmental Service Technologies, LLC  
3100 Plains Highway  
Lovington, New Mexico 88260

**October 2012**

  
\_\_\_\_\_  
Joel W. Lowry  
Project Manager

HOBBS OCD  
OCT 18 2012  
RECEIVED

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Appendix B – Laboratory Analytical Reports

Appendix C – Release Notification and Corrective Action (Form C-141)



## 1.0 INTRODUCTION & BACKGROUND INFORMATION

Basin Environmental Service Technologies, LLC (Basin), on behalf of Southern Union Gas Services (Southern Union), has prepared this *Remediation Summary & Site Closure Request* for the L-5 (8' Line) Historical Release Site (1RP-2334). The legal description of the release site is Unit Letter "O" (SW/SE), Section 21, Township 21 South, Range 37 East, in Lea County, New Mexico. The geographic coordinates of the release site are 32° 27.436' North latitude and 103° 09.935' West longitude. The property affected by the release is owned by the Millard Deck Estate. Please reference Figure 1 for a "Site Location Map".

On October 14, 2009, Southern Union discovered a release had occurred on the L-5 Pipeline. The Release Notification and Corrective Action Form (Form C-141) indicated failure of a section of an eight-inch (8") low-pressure pipeline resulted in the release of approximately five barrels (5 bbls) of a crude oil, produced water and natural gas mixture. The release was reported to the New Mexico Oil Conservation Division (NMOCD) Hobbs District Office on October 15, 2009. The C-141 indicated the release affected approximately nine hundred square feet (900 ft<sup>2</sup>) of pasture land. General photographs of the release site are provided as Appendix A. The Form C-141 is provided as Appendix C.

## 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 information was unavailable for Section 21, Township 21 South, Range 36 East. An NMOCD representative indicated the depth to groundwater is approximately fifty-one feet (51') below ground surface (bgs) on the initial C-141. Based on the NMOCD ranking system and presence of impacted medium existing below two feet (2') bgs, 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 one thousand feet (1,000') 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 one thousand feet (1,000') 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 L-5 (8" Line) Historical Release Site has an initial ranking score of twenty (20) points. The soil remediation levels for a site with a ranking score of twenty (20) points are as follows:

- Benzene – 10 mg/Kg (ppm)
- Benzene, toluene, ethylbenzene and xylene (BTEX) – 50 mg/Kg (ppm)
- Total petroleum hydrocarbons (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 October 30, 2009, Basin began remediation activities at the L-5 (8" Line) Historical Release Site. Visually impacted material was excavated and stockpiled on location, pending final disposition. The excavation was advanced until photo-ionization detector (PID) readings and chloride field test results suggested soil containing concentrations of BTEX, TPH and chloride above NMOCD regulatory standards had been removed.

On November 19, 2009, seventeen (17) confirmation soil samples (West SW @ 11.5', South SW @ 11.5' North SW @ 11.5' East SW @ 11.5' RP Floor @ 12', SP-1, SP-2, SP-3, SP-4, SP-5, SP-6, SP-7, SP-8, SP-9, SP-10, SP-11, and SP-12) were collected from the floor and sidewalls of the excavation. Collected soil samples were submitted to Cardinal Laboratories of Hobbs, New Mexico for analysis of BTEX, TPH and chloride concentrations in accordance with EPA Methods SW 846-8021b, SW 846-8015M and SM 4500 Cl-B, respectively. Laboratory analytical results indicated benzene concentrations were less than the laboratory method detection limit (MDL) of 0.050 mg/Kg for each of the submitted soil samples. Analytical results indicated BTEX concentrations were less than the laboratory MDL for each of the submitted soil samples with the exception of soil sample SP-7, which exhibited a concentration of 0.468 mg/Kg. TPH concentrations ranged from less than the laboratory MDL for soil samples West SW @ 11.5', South SW @ 11.5' and SP-12 to 267 mg/Kg for soil sample SP-7. Chloride concentrations ranged from less than the laboratory MDL of 16.0 mg/Kg for soil samples North SW @ 11.5', East SW @ 11.5', SP-1, SP-2, SP-3, SP-4, SP-5, SP-6, SP-8, SP-9, SP-10, SP-11 and SP-12 to 112 mg/Kg for soil sample RP Floor @ 12'. Concentrations of BTEX, TPH and chloride were less than NMOCD regulatory remediation action levels in each of the submitted soil samples, with the exception of soil sample SP-7, which exhibited a TPH concentration of 267 mg/Kg. The excavation was advanced in the area represented by soil sample SP-7.

A five-point composite soil sample (Stockpile Baseline) was collected from the stockpiled material and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated the BTEX concentration was 1.445 mg/KG, the TPH concentration was 1,157 mg/Kg and the chloride concentration was less than the laboratory MDL.

On January 12, 2010, upon advancing the excavation in the area represented by soil sample SP-7, an additional confirmation soil sample (SP-7A) was collected and submitted to the laboratory for analysis. Analytical results indicated BTEX, TPH and chloride concentrations were less than the appropriate laboratory MDL.

Two (2) additional five-point composite soil samples (Stockpile East and Stockpile West) were collected from the stockpiled material and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX concentrations were less than the laboratory MDL for both samples. The TPH concentration was 937.9 mg/Kg for soil sample Stockpile East and 699.6 mg/Kg for soil sample Stockpile West. Chloride concentrations were less than the laboratory MDL for soil sample Stockpile East and 32.0 mg/Kg for soil sample Stockpile West.

On September 14, 2012, Basin revisited the L-5 (8" Line) Historical Release Site. One (1) five-point composite soil sample (Stockpile) was collected from the stockpiled material and submitted



to Xenco Laboratories, of Odessa, Texas, for analysis of BTEX, TPH and chloride concentrations in accordance with EPA Methods SW 846-8021b, SW 846-8015M and 300.0, respectively. Laboratory analytical results indicated the benzene and BTEX concentration were less than the appropriate laboratory MDL, the TPH concentration was 233 mg/Kg and the chloride concentration was 22.4 mg/Kg. The stockpiled material was blended on-site in an effort to facilitate aeration and bioremediation.

On September 25, 2012, one (1) five-point composite soil sample (Stockpile #2) was collected from the stockpiled material and submitted to the laboratory for analysis of TPH concentrations. Laboratory analytical results indicated the TPH concentration of the blended stockpile material was 72.0 mg/Kg. Based on these laboratory analytical results, the stockpiled soil was deemed suitable for use as backfill.

On October 8, 2012, on receiving approval from an NMOCD representative, the excavation was backfilled with the on-site stockpile material. Excavation backfill was compacted in twelve-inch (12") lifts and contoured to fit the surrounding topography. Prior to backfilling, the final dimensions of the excavation were approximately four hundred feet (400') in length, eight feet (8') to thirty feet (30') in width, and ranged in depth from approximately two feet (2') to twelve feet (12') bgs.

The site will be reseeded at the request of the landowner.

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

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

Soil samples were delivered to Cardinal Laboratories of Hobbs, New Mexico, and/or Xenco Laboratories, Inc., of Odessa, Texas, for BTEX, TPH, and/or chloride analyses using the methods described below:

- 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 SM 4500-Cl B and/of 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**

Confirmation soil samples collected from the excavation floor and sidewalls indicated benzene, BTEX, TPH and chloride concentrations were less than NMOCD regulatory standards in each of the submitted soil samples. Based on these laboratory analytical results, Basin recommends Southern Union provide the NMOCD Hobbs District Office a copy of this *Remediation Summary & Site Closure Request* and request the NMOCD grant site closure to the L-5 (8" Line) Historical Release Site.

## **6.0 LIMITATIONS**

Basin Environmental Service Technologies, LLC, has prepared this *Remediation Summary & 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.

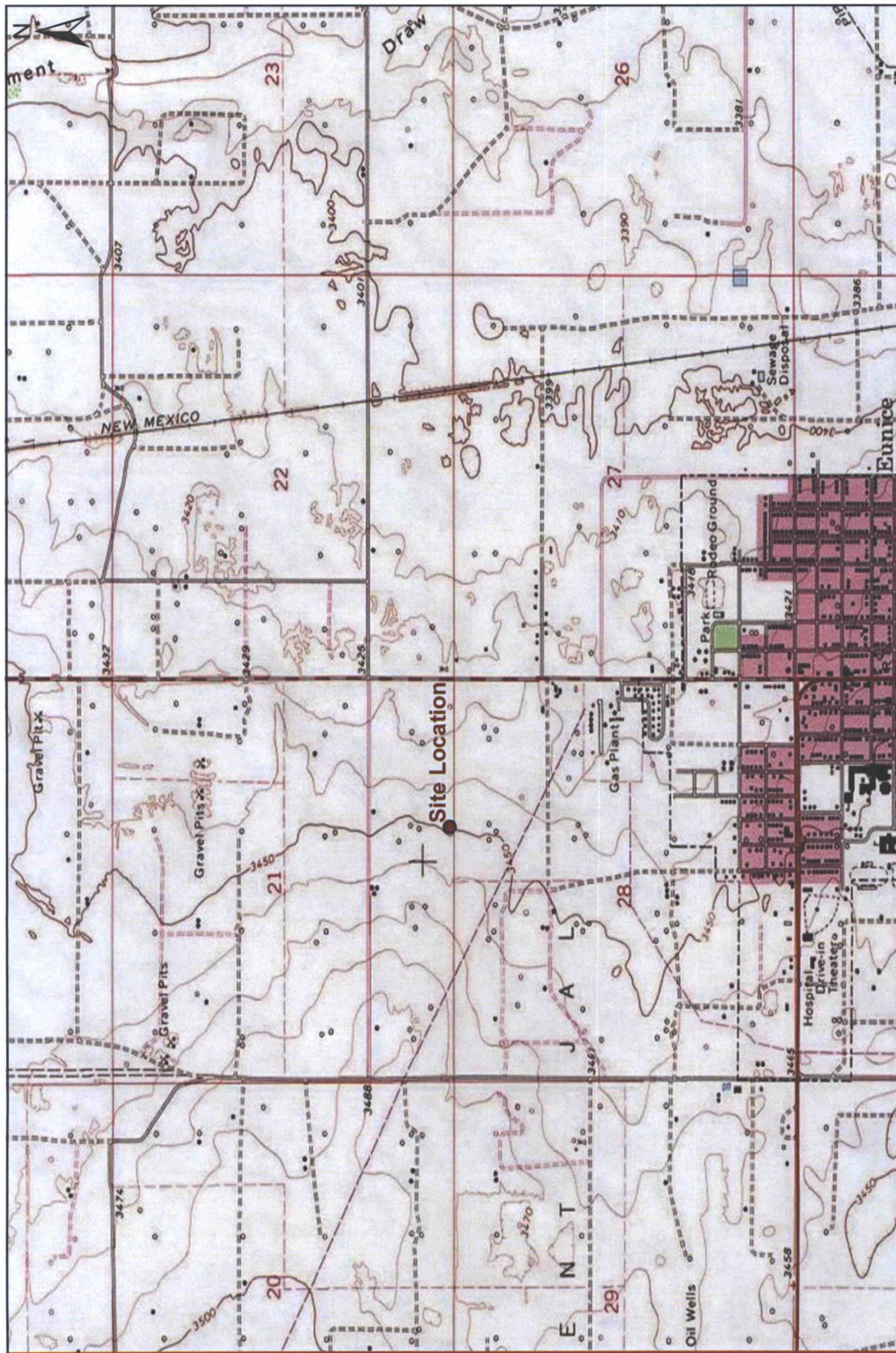
This report has been prepared for the benefit of Southern Union Gas Services. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or Southern Union Gas Services.



## **7.0 DISTRIBUTION**

- Copy 1: Geoffrey Leking  
New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division (District 1)  
1625 French Drive  
Hobbs, NM 88240  
GeoffreyR.Leking@state.nm.us
- Copy 2: Rose Slade  
Southern Union Gas Services  
801 S. Loop 464  
Monahans, Texas 79756  
rose.slade@sug.com
- Copy 3: Basin Environmental Service Technologies, LLC  
P.O. Box 301  
Lovington, New Mexico 88260





**Figure 1**  
**Site Location Map**  
 Southern Union Gas Services  
 L-5 (8" Line)  
 Lea County, New Mexico  
 NMOCD Reference #: 1RP-2334



Basin Environmental Service Technologies, LLC  
 3100 Plains Hwy.  
 Lovington, NM 88260

Drawn By: BJA	Checked By: JWL
September 26, 2012	Scale: 1" = 2000'





A horizontal number line labeled "Distance in Feet". The line has tick marks at 40, 20, 0, 20, and 40. The segments between the tick marks are shaded with a black and white checkerboard pattern.

Figure 2  
Site & Sample Location Map  
Southern Union Gas Services  
L-5 (8" Line)  
NMOC Ref RP-2086  
Lea County, New Mexico

TABLE 1

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

## SOUTHERN UNION GAS SERVICES

L-5 (8" LINE)

LEA COUNTY, NEW MEXICO

NMOCD REF# 1RP-2334

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030				METHOD: 8015M				TOTAL TPH C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	SM 4500-CL B CHLORIDE (mg/Kg)
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	TOTAL XYLENES (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)		
West SW @ 11.5'	11.5'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	<10.0	<10.0	<10.0	64
South SW @ 11.5'	11.5'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	<10.0	<10.0	<10.0	96
North SW @ 11.5'	11.5'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	28.4	<10.0	28.4	<16
East SW @ 11.5'	11.5'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	93.2	<10.0	93.2	<16
RP Floor @ 12'	12'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	25.2	<10.0	25.2	112
SP-1	11.5'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	24.2	<10.0	24.2	<16
SP-2	12'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	36.5	<10.0	36.5	<16
SP-3	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	37.4	<10.0	37.4	<16
SP-4	11.5'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	32.2	<10.0	32.2	<16
SP-5	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	15.8	<10.0	15.8	<16
SP-6	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	16.2	<10.0	16.2	<16
SP-7	2'	11/19/2009	Excavated	<0.050	<0.050	0.090	0.378	0.468	<10.0	267.0	<10.0	267.0	64
SP-8	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	17.2	<10.0	17.2	<16
SP-9	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	33.7	<10.0	33.7	<16
SP-10	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	30.7	<10.0	30.7	<16
SP-11	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	15.2	<10.0	15.2	<16
SP-12	2'	11/19/2009	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	<10.0	<10.0	<10.0	<16
STOCKPILE BASE LINE	N/A	11/19/2009	Stockpiled	<0.050	<0.050	0.257	1.19	1.447	25.5	1,070	61.5	1,157	<16
SP-7A	3'	1/12/2010	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	<10.0	<10.0	<10.0	<16
STOCKPILE EAST	N/A	1/12/2010	Stockpiled	<0.050	<0.050	<0.050	<0.300	<0.300	23.9	847	67.0	937.9	<16
STOCKPILE WEST	N/A	1/12/2010	Stockpiled	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	648	51.6	699.6	32
STOCKPILE	N/A	9/14/2012	Stockpiled	<0.00104	<0.00208	<0.00104	<0.00208	<0.00208	<15.6	217	16.4	233	22.4*
STOCKPILE #2	N/A	9/25/2012	Stockpiled	<0.00105	<0.00210	<0.00105	<0.00210	<0.00210	<15.8	72.0	<15.8	72.0	-
NMOCD Standard				10				50				100	250

- = Not analyzed.

\* Denotes Laboratory Analytical Results in accordance with EPA 300/300.1





Photograph of initial release at the L-5 (8" Line) Historical Release Site.



Photograph of initial release at the L-5 (8" Line) Historical Release Site.





Photograph of excavation activities at the L-5 (8" Line) Historical Release Site.



Photograph of excavation activities at the L-5 (8" Line) Historical Release Site.





Photograph of excavation activities at the L-5 (8" Line) Historical Release Site.



Photograph of backfill activities at the L-5 (8" Line) Historical Release Site.





Photograph of backfill activities at the L-5 (8" Line) Historical Release Site.



Photograph of L-5 (8" Line) Historical Release Site after remediation activities.





# ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

---

December 1, 2009

Camille Bryant  
Basin Environmental Consulting, LLC.  
P.O. Box 381  
Lovington, NM 88260

Re: 8 Inch Lateral L-5 (SUG)

Enclosed are the results of analyses for sample number H18775, received by the laboratory on 11/20/09 at 4:50 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 5 (includes Chain of Custody)

Sincerely,

Celey D. Keene  
Laboratory Director



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
BASIN ENVIRONMENTAL  
ATTN: CAMILLE BRYANT  
2800 PLAINS HWY  
LOVINGTON, NM 88260  
FAX TO: (575) 396-1429

Receiving Date: 11/20/09  
Reporting Date: 11/30/09  
Project Owner: SUG (2009-055)  
Project Name: 8-INCH LATERAL L-5  
Project Location: LEA CO., NM

Sampling Date: 11/19/09  
Sample Type: SOIL  
Sample Condition: COOL & INTACT @ 3.5°C  
Sample Received By: ML  
Analyzed By: AB

		GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/kg)	DRO ext. (>C <sub>28</sub> -C <sub>35</sub> ) (mg/kg)
LAB NUMBER	SAMPLE ID			
	ANALYSIS DATE	11/25/09	11/25/09	11/25/09
H18775-1	WEST SW @ 11.5'	<10.0	<10.0	<10.0
H18775-2	SOUTH SW @ 11.5'	<10.0	<10.0	<10.0
H18775-3	NORTH SW @ 11.5'	<10.0	28.4	<10.0
H18775-4	EAST SW @ 11.5'	<10.0	93.2	<10.0
H18775-5	RP FLOOR @ 12'	<10.0	25.2	<10.0
H18775-6	SP-1	<10.0	24.2	<10.0
H18775-7	SP-2	<10.0	36.5	<10.0
H18775-8	SP-3	<10.0	37.4	<10.0
H18775-9	SP-4	<10.0	32.2	<10.0
H18775-10	SP-5	<10.0	15.8	<10.0
H18775-11	SP-6	<10.0	16.2	<10.0
H18775-12	SP-7	<10.0	267	<10.0
H18775-13	SP-8	<10.0	17.2	<10.0
H18775-14	SP-9	<10.0	33.7	<10.0
H18775-15	SP-10	<10.0	30.7	<10.0
H18775-16	SP-11	<10.0	15.2	<10.0
H18775-17	SP-12	<10.0	<10.0	<10.0
H18775-18	STOCKPILE BASELINE	25.5	1,070	61.5*
	Quality Control	447	585	-
	True Value QC	500	500	-
	% Recovery	89.4	117	-
	Relative Percent Difference	10.1	0.4	-

METHODS: TPH GRO & DRO: EPA SW-846 8015 M extended. Reported on wet weight.

\*C<sub>35</sub> peak less than 75% of C<sub>28</sub> peak. Not accredited for GRO/DRO/EXT DRO.

Lab Director

Date

H18775 TPHEXT BASIN

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ANALYTICAL RESULTS FOR  
BASIN ENVIRONMENTAL  
ATTN: CAMILLE BRYANT  
2800 PLAINS HWY  
LOVINGTON, NM 88260  
FAX TO: (575) 396-1429

Receiving Date: 11/20/09  
Reporting Date: 11/25/09  
Project Owner: SUG (2009-055)  
Project Name: 8-INCH LATERAL L-5  
Project Location: LEA CO., NM

Sampling Date: 11/19/09  
Sample Type: SOIL  
Sample Condition: COOL & INTACT @ 3.5°C  
Sample Received By: ML  
Analyzed By: ZL/HM

ETHYL TOTAL

LAB NO.	SAMPLE ID	BENZENE (mg/kg)	TOLUENE (mg/kg)	BENZENE (mg/kg)	XYLENES (mg/kg)	Cl* (mg/kg)
ANALYSIS DATE:		11/23/09	11/23/09	11/23/09	11/23/09	11/24/09
H18775-1	WEST SW @ 11.5'	<0.050	<0.050	<0.050	<0.300	64
H18775-2	SOUTH SW @ 11.5'	<0.050	<0.050	<0.050	<0.300	96
H18775-3	NORTH SW @ 11.5'	<0.050	<0.050	<0.050	<0.300	< 16
H18775-4	EAST SW @ 11.5'	<0.050	<0.050	<0.050	<0.300	< 16
H18775-5	RP FLOOR @ 12'	<0.050	<0.050	<0.050	<0.300	112
H18775-6	SP-1	<0.050	<0.050	<0.050	<0.300	< 16
H18775-7	SP-2	<0.050	<0.050	<0.050	<0.300	< 16
H18775-8	SP-3	<0.050	<0.050	<0.050	<0.300	< 16
H18775-9	SP-4	<0.050	<0.050	<0.050	<0.300	< 16
H18775-10	SP-5	<0.050	<0.050	<0.050	<0.300	< 16
H18775-11	SP-6	<0.050	<0.050	<0.050	<0.300	< 16
H18775-12	SP-7	<0.050	<0.050	0.090	0.378	64
H18775-13	SP-8	<0.050	<0.050	<0.050	<0.300	< 16
H18775-14	SP-9	<0.050	<0.050	<0.050	<0.300	< 16
H18775-15	SP-10	<0.050	<0.050	<0.050	<0.300	< 16
H18775-16	SP-11	<0.050	<0.050	<0.050	<0.300	< 16
H18775-17	SP-12	<0.050	<0.050	<0.050	<0.300	< 16
H18775-18	STOCKPILE BASELINE	<0.050	<0.050	0.257	1.19	< 16
Quality Control		0.049	0.048	0.050	0.150	490
True Value QC		0.050	0.050	0.050	0.150	500
% Recovery		98.0	96.0	100	100	98.0
Relative Percent Difference		1.0	<1.0	<1.0	<1.0	2.0

METHODS: BTEX - SW-846 8021B; Cl-: Std. Methods 4500-Cl-B

\*Analyses performed on 1:4 w:v aqueous extracts. Reported on wet weight.

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE,  
AND TOTAL XYLENES. Not accredited for Chloride.

Lab Director

Date

H18775 BCL BASIN

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# CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

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Page 2 of 2

Company Name: <b>Basin Consulting</b>		P.O. #:		ANALYSIS REQUEST														
Project Manager: <b>Camille Bryant</b>		Company: <b>SUG</b>																
Address: <b>2800 Plains Hwy</b>		Attn:																
City: <b>Lorington</b>		State: <b>NM</b>																
Phone #: <b>505-605-7210</b>		Zip: <b>88260</b>																
Fax #: <b>575-396-1429</b>		Address:																
Project #: <b>2009-055</b>		City:																
Project Name: <b>8-Inch Lateral L-5</b>		State:																
Project Location: <b>Lea Co NM</b>		Phone #:																
Sampler Name: <b>Camille Bryant</b>		Fax #:																
Lab I.D.	Sample I.D.	MATRIX	PRESERV.	SAMPLING	DATE	TIME												
H18775-11	SP-6	GROUNDWATER	X	2009	11/19	1510	X	X	X	X	X	X	X	X	X	X		
-12	SP-7	WASTEWATER	X		11/19	1520	X	X	X	X	X	X	X	X	X	X		
-13	SP-8	SLUDGE	X		11/19	1530	X	X	X	X	X	X	X	X	X	X		
-14	SP-9	OIL	X		11/19	1540	X	X	X	X	X	X	X	X	X	X		
-15	SP-10	SOIL	X		11/19	1550	X	X	X	X	X	X	X	X	X	X		
-16	SP-11	WASTEWATER	X		11/19	1600	X	X	X	X	X	X	X	X	X	X		
-17	SP-12	GROUNDWATER	X		11/19	1610	X	X	X	X	X	X	X	X	X	X		
-18	Stockpile Baseline		X		11/19	1620	X	X	X	X	X	X	X	X	X	X		

PLEASE NOTE: LIABILITY AND DAMAGES. CARDINAL'S LIABILITY AND CLIENT'S EXCLUSIVE REMEDY FOR ANY CLAIM ARISING WHETHER BASED IN CONTRACT OR TORT, SHALL BE LIMITED TO THE AMOUNT PAID BY THE CLIENT FOR THE ANALYSIS. ALL CLAIMS INCLUDING THOSE FOR NEGLIGENCE AND ANY OTHER CAUSE WHATSOEVER SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING AND RECEIVED BY CARDINAL WITHIN 30 DAYS AFTER COMPLETION OF THE APPLICABLE SERVICE. IN NO EVENT SHALL CARDINAL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, BUSINESS INTERRUPTIONS, LOSS OF USE, OR LOSS OF PROFITS INCURRED BY CLIENT, ITS SUBSIDIARIES, AFFILIATES OR SUCCESSORS ARISING OUT OF OR RELATED TO THE PERFORMANCE OF SERVICES HEREUNDER BY CARDINAL. REGARDLESS OF WHETHER SUCH CLAIM IS BASED UPON ANY OF THE ABOVE STATED REASONS OR OTHERWISE.

Sampler Relinquished By: <b>Camille Bryant</b>	Date: <b>11-20-09</b>	Received By: <b>Justin LeBut</b>	Phone Result: <input type="checkbox"/>	No	Add'l Phone #:
Relinquished By:	Time: <b>4:50P</b>	Received By:	Fax Result: <input type="checkbox"/>	No	Add'l Fax #:
REMARKS:					

Delivered By: (Circle One)	Temp.	Sample Condition	CHECKED BY:
Sampler - UPS - Bus - Other:	3.5m #26	Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	(Initials) <b>CLB</b>



# ARDINAL LABORATORIES

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

January 19, 2010

Camille Bryant  
Basin Environmental Consulting, LLC.  
P.O. Box 381  
Lovington, NM 88260

Re: SUG 2009-055 (8 inch lateral L-5)

Enclosed are the results of analyses for sample number H19041, received by the laboratory on 01/12/10 at 4:50 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.2	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 4 (includes Chain of Custody)

Sincerely,

Celey D. Keene  
Laboratory Director

---

This report conforms with NELAP requirements.





PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR  
BASIN ENVIRONMENTAL CONSULTING  
ATTN: CAMILLE BRYANT  
2800 PLAINS HWY  
LOVINGTON, NM 88260  
FAX TO: (575) 396-1429


Receiving Date: 01/12/10  
Reporting Date: 01/18/10  
Project Number: 2009-055 (SUG)  
Project Name: 8-INCH LATERAL L-5  
Project Location: LEA CO., NM

Sampling Date: 01/12/10  
Sample Type: SOIL  
Sample Condition: INTACT @ 9°C  
Sample Received By: JH  
Analyzed By: AB/ZL

LAB NO.	SAMPLE ID	GRO (C <sub>6</sub> -C <sub>10</sub> ) (mg/kg)	DRO (>C <sub>10</sub> -C <sub>28</sub> ) (mg/kg)	DRO ext. (>C <sub>28</sub> -C <sub>35</sub> ) (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)
ANALYSIS DATE:		01/15/10	01/15/10	01/15/10	01/13/10	01/13/10	01/13/10	01/13/10
H19041-1	SP-7A	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.300
H19041-2	STOCKPILE EAST	23.9	847	67.0	<0.050	<0.050	<0.050	0.501
H19041-3	STOCKPILE WEST	<10.0	648	51.6	<0.050	<0.050	<0.050	0.339
Quality Control		456	458	-	0.051	0.049	0.051	0.136
True Value QC		500	500	-	0.050	0.050	0.050	0.150
% Recovery		91.2	91.6	-	102	98.0	102	90.7
Relative Percent Difference		3.8	0.4		2.0	<1.0	2.0	1.9

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8021B.

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE,  
AND TOTAL XYLENES. Reported on wet weight. Not accredited for GRO/DRO/DRO ext.

  
Lab Director

  
Date

H19041 TPHextBTEX BASIN

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**ANALYTICAL RESULTS FOR  
BASIN ENVIRONMENTAL CONSULTING, LLC  
ATTN: CAMILLE BRYANT  
P.O. BOX 381  
LOVINGTON, NM 88260  
FAX TO: (575) 396-1429**

Analysis Date: 01/13/10  
Sampling Date: 01/12/10  
Sample Type: SOIL  
Sample Condition: INTACT @ 9°C  
Sample Received By: JH  
Analyzed By: HM

Note: Analyses performed on 1:4 w:v aqueous extracts.  
Not accredited for Chloride.

Date 01/19/10

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Page        of       [illegible]

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**Analytical Report 449054**  
**for**  
**Southern Union Gas Services- Monahans**

**Project Manager: Ben Arguijo**

**L-5 (8" line)**

**(RP-2334)**

**18-SEP-12**

Collected By: Client



**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 (AZ0765), 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), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

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

Xenco-Lakeland: Florida (E84098)

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

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

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

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

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





18-SEP-12

Project Manager: **Ben Arguijo**  
**Southern Union Gas Services- Monahans**  
801 South Loop 464  
Monahans, TX 79756

Reference: XENCO Report No: **449054**  
**L-5 (8" line)**  
Project Address: Lea County, NM

**Ben Arguijo:**

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 449054. 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. The uncertainty of measurement associated with the results of analysis reported is available upon request. 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. 449054 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,

---

**Nicholas Straccione**  
Project 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 449054



Southern Union Gas Services- Monahans, Monahans, TX

L-5 (8" line)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Stockpile	S	09-14-12 13:00		449054-001





## CASE NARRATIVE

*Client Name: Southern Union Gas Services- Monahans*

*Project Name: L-5 (8" line)*



*Project ID: (RP-2334)*

*Work Order Number: 449054*

*Report Date: 18-SEP-12*

*Date Received: 09/14/2012*

---

**Sample receipt non conformances and comments:**

---

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-896685 TPH By SW8015 Mod

SW8015MOD\_NM

Batch 896685, C12-C28 Diesel Range Hydrocarbons recovered below QC limits in the Matrix Spike Duplicate.

Samples affected are: 449054-001.

The Laboratory Control Sample for C12-C28 Diesel Range Hydrocarbons is within laboratory Control Limits

Batch: LBA-896763 BTEX by EPA 8021B

SW8021BM

Batch 896763, Ethylbenzene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Samples affected are: 449054-001.

The Laboratory Control Sample for m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits



# Certificate of Analysis Summary 449054

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



Project Id: (RP-2334)  
Contact: Ben Arguijo  
Project Location: Lea County, NM

Project Name: L-5 (8" line)

Date Received in Lab: Fri Sep-14-12 03:30 pm  
Report Date: 18-SEP-12

Project Manager: Nicholas Straccione

Analysis Requested	Lab Id:	449054-001				
	Field Id:	Stockpile				
	Depth:					
	Matrix:	SOIL				
	Sampled:	Sep-14-12 13:00				
	Extracted:	Sep-18-12 12:20				
	Analyzed:	Sep-18-12 15:41				
	Units/RL:	mg/kg RL				
BTEX by EPA 8021B		ND 0.00104				
Benzene		ND 0.00208				
Toluene		ND 0.00104				
Ethylbenzene		ND 0.00208				
m,p-Xylenes		ND 0.00104				
o-Xylene		ND 0.00104				
Total Xylenes		ND 0.00104				
Total BTEX		ND 0.00104				
Inorganic Anions by EPA 300/300.1 SUB: E871002	Extracted:	Sep-15-12 13:30				
	Analyzed:	Sep-15-12 19:18				
	Units/RL:	mg/kg RL				
Chloride		22.4 1.09				
Percent Moisture	Extracted:					
	Analyzed:	Sep-17-12 12:45				
	Units/RL:	% RL				
Percent Moisture		3.93 1.00				
TPH By SW8015 Mod	Extracted:	Sep-17-12 09:30				
	Analyzed:	Sep-17-12 19:23				
	Units/RL:	mg/kg RL				
C6-C12 Gasoline Range Hydrocarbons		ND 15.6				
C12-C28 Diesel Range Hydrocarbons		217 15.6				
C28-C35 Oil Range Hydrocarbons		16.4 15.6				
Total TPH		233 15.6				

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.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Nicholas Straccione  
Project 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 affect the recovery of the spike concentration. This condition could also affect 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 quantitation limit and above the detection limit.
  - 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.
- \* Surrogate recovered outside laboratory control limit.
- BRL** Below Reporting Limit.
- RL** Reporting Limit
- MDL** Method Detection Limit      **SDL** Sample Detection Limit      **LOD** Limit of Detection
- PQL** Practical Quantitation Limit      **MQL** Method Quantitation Limit      **LOQ** Limit of Quantitation
- DL** Method Detection Limit
- NC** Non-Calculable
- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

## Form 2 - Surrogate Recoveries

Project Name: L-5 (8" line)

Work Orders : 449054,

Project ID: (RP-2334)

Lab Batch #: 896685

Sample: 449054-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/17/12 19:23

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.8	99.6	96	70-135	
o-Terphenyl	48.5	49.8	97	70-135	

Lab Batch #: 896763

Sample: 449054-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/12 15:41

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0259	0.0300	86	80-120	
4-Bromofluorobenzene	0.0249	0.0300	83	80-120	

Lab Batch #: 896685

Sample: 627274-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/17/12 11:58

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.2	99.6	95	70-135	
o-Terphenyl	47.0	49.8	94	70-135	

Lab Batch #: 896763

Sample: 627327-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/18/12 14:12

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0257	0.0300	86	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 896685

Sample: 627274-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/17/12 11:00

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	53.9	50.1	108	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: L-5 (8" line)

Work Orders : 449054,

Project ID: (RP-2334)

Lab Batch #: 896763

Sample: 627327-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/18/12 13:36

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0312	0.0300	104	80-120	
4-Bromofluorobenzene		0.0322	0.0300	107	80-120	

Lab Batch #: 896685

Sample: 627274-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/17/12 11:29

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1-Chlorooctane		102	100	102	70-135	
o-Terphenyl		52.6	50.1	105	70-135	

Lab Batch #: 896763

Sample: 627327-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/18/12 13:51

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0276	0.0300	92	80-120	
4-Bromofluorobenzene		0.0307	0.0300	102	80-120	

Lab Batch #: 896685

Sample: 448788-015 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/17/12 12:28

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1-Chlorooctane		90.7	100	91	70-135	
o-Terphenyl		49.9	50.2	99	70-135	

Lab Batch #: 896763

Sample: 449054-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/12 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		0.0302	0.0300	101	80-120	
4-Bromofluorobenzene		0.0300	0.0300	100	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: L-5 (8" line)

Work Orders : 449054,

Project ID: (RP-2334)

Lab Batch #: 896685

Sample: 448788-015 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/17/12 12:57

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	89.2	99.9	89	70-135	
o-Terphenyl	49.3	50.0	99	70-135	

Lab Batch #: 896763

Sample: 449054-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/18/12 15:55

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0344	0.0300	115	80-120	
4-Bromofluorobenzene	0.0342	0.0300	114	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.



**Project Name: L-5 (8" line)**
**Work Order #: 449054**
**Analyst: KEB**
**Lab Batch ID: 896763**
**Sample: 627327-1-BKS**
**Batch #: 1**
**Date Prepared: 09/18/2012**
**Project ID: (RP-2334)**
**Date Analyzed: 09/18/2012**
**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	<0.00100	0.100	0.0940	94	0.100	0.0940	94	0	70-130	35	
	Toluene	<0.00200	0.100	0.0935	94	0.100	0.0928	93	1	70-130	35	
	Ethylbenzene	<0.00100	0.100	0.0907	91	0.100	0.0904	90	0	71-129	35	
	m,p-Xylenes	<0.00200	0.200	0.196	98	0.200	0.199	100	2	70-135	35	
	o-Xylene	<0.00100	0.100	0.0940	94	0.100	0.0969	97	3	71-133	35	

**Analyst: TTE**
**Date Prepared: 09/15/2012**
**Date Analyzed: 09/15/2012**
**Lab Batch ID: 896628**
**Sample: 627250-1-BKS**
**Batch #: 1**
**Matrix: Solid**
**Units: mg/kg**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
	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
Inorganic Anions by EPA 300/300.1											
Analytes											
Chloride	<0.977	97.7	97.9	100	102	105	103	7	80-120	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

Project Name: L-5 (8" line)

Work Order #: 449054

Analyst: KEB

Lab Batch ID: 896685

Sample: 627274-1-BKS

Units: mg/kg

Date Prepared: 09/17/2012

Batch #: 1

Project ID: (RP-2334)

Date Analyzed: 09/17/2012

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY														
Units: mg/kg	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	
			<15.0	1000	945	95	1000	934	93	1	70-135	35		
			<15.0	1000	925	93	1000	914	91	1	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: L-5 (8" line)

Work Order #: 449054

Lab Batch #: 896628

Date Analyzed: 09/15/2012

Date Prepared: 09/15/2012

Project ID: (RP-2334)

Analyst: TTE

QC- Sample ID: 449054-001 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

### 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	22.4	109	129	98	80-120	

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

# Form 3 - MS / MSD Recoveries

Project Name: L-5 (8" line)

Work Order #: 449054

Lab Batch ID: 896763

Date Analyzed: 09/18/2012

Reporting Units: mg/kg

Project ID: (RP-2334)

QC- Sample ID: 449054-001 S Batch #: 1 Matrix: Soil

Date Prepared: 09/18/2012 Analyst: KEB

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 Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
		Benzene	<0.00104	0.104	0.0918	88	0.104	0.0972	93	6	70-130	35	
		Toluene	<0.00208	0.104	0.0826	79	0.104	0.0826	79	0	70-130	35	
		Ethylbenzene	<0.00104	0.104	0.0614	59	0.104	0.0617	59	0	71-129	35	X
		m,p-Xylenes	<0.00208	0.208	0.124	60	0.208	0.124	60	0	70-135	35	X
		o-Xylene	<0.00104	0.104	0.0649	62	0.104	0.0645	62	1	71-133	35	X

Lab Batch ID: 896685

Date Analyzed: 09/17/2012

Reporting Units: mg/kg

QC- Sample ID: 448788-015 S

Date Prepared: 09/17/2012

Batch #: 1 Matrix: Soil

Analyst: KEB

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
C6-C12 Gasoline Range Hydrocarbons	<15.2	1010	924	91	1010	842	83	9	70-135	35	
C12-C28 Diesel Range Hydrocarbons	520	1010	1270	74	1010	1180	65	7	70-135	35	X

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: L-5 (8" line)**

**Work Order #: 449054**

**Lab Batch #: 896699**

**Project ID: (RP-2334)**

**Date Analyzed: 09/17/2012 12:45**

**Date Prepared: 09/17/2012**

**Analyst: WRU**

**QC- Sample ID: 449054-001 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	3.93	4.02	2	15	

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



## Prelogin/Nonconformance Report- Sample Log-In

Client: Southern Union Gas Services- Monahan

Date/ Time Received: 09/14/2012 03:30:00 PM

Work Order #: 449054

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

### Sample Receipt Checklist

### Comments

#1 *Temperature of cooler(s)?	7.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles/ container?	Yes
#6 *Custody Seals Signed and dated for Containers/coolers	Yes
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	Yes
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	Yes
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	Yes
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	Yes

\* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by: \_\_\_\_\_

Date: \_\_\_\_\_

Checklist reviewed by: \_\_\_\_\_

Date: \_\_\_\_\_

**Analytical Report 449822**  
**for**  
**Southern Union Gas Services- Monahans**

**Project Manager: Joel Lowry**

**L-5(8"line)**

**(RP-2334)**

**03-OCT-12**

Collected By: Client



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

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0765), 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), DoD (L11-54)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135)  
Louisiana (04176), USDA (P330-07-00105)

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

Xenco-Lakeland: Florida (E84098)

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

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

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

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

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





03-OCT-12

Project Manager: **Joel Lowry**  
**Southern Union Gas Services- Monahans**  
801 South Loop 464  
Monahans, TX 79756

Reference: XENCO Report No: **449822**  
**L-5(8"line)**  
Project Address: Lea County, NM

**Joel Lowry:**

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 449822. 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. The uncertainty of measurement associated with the results of analysis reported is available upon request. 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. 449822 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,

**Alejandro Montoya**

Odessa Laboratory Director

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*Certified and approved by numerous States and Agencies.*

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## Sample Cross Reference 449822



Southern Union Gas Services- Monahans, Monahans, TX

L-5(8"line)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Stockpile #2	S	09-25-12 13:30		449822-001





## CASE NARRATIVE

*Client Name: Southern Union Gas Services- Monahans*

*Project Name: L-5(8"line)*



*Project ID: (RP-2334)*

*Work Order Number: 449822*

*Report Date: 03-OCT-12*

*Date Received: 09/27/2012*

---

**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-897637 BTEX by EPA 8021B

SW8021BM

Batch 897637, Ethylbenzene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Samples affected are: 449822-001.

The Laboratory Control Sample for Ethylbenzene is within laboratory Control Limits



**Certificate of Analysis Summary 449822**  
**Southern Union Gas Services- Monahans, Monahans, TX**  
**Project Name: L-5(8"line)**



**Project Id:** (RP-2334)  
**Contact:** Joel Lowry  
**Project Location:** Lea County, NM

**Date Received in Lab:** Thu Sep-27-12 02:56 pm  
**Report Date:** 03-OCT-12  
**Project Manager:** Nicholas Straccione

<i>Analysis Requested</i>		<i>Lab Id:</i>	449822-001				
		<i>Field Id:</i>	Stockpile #2				
		<i>Depth:</i>					
		<i>Matrix:</i>	SOIL				
		<i>Sampled:</i>	Sep-25-12 13:30				
<b>BTEX by EPA 8021B</b>		<i>Extracted:</i>	Sep-28-12 12:05				
		<i>Analyzed:</i>	Sep-28-12 15:18				
		<i>Units/RL:</i>	mg/kg RL				
	Benzene		ND 0.00105				
	Toluene		ND 0.00210				
	Ethylbenzene		ND 0.00105				
	m_p-Xylenes		ND 0.00210				
	o-Xylene		ND 0.00105				
	Total Xylenes		ND 0.00105				
	Total BTEX		ND 0.00105				
<b>Percent Moisture</b>		<i>Extracted:</i>					
		<i>Analyzed:</i>	Oct-01-12 14:30				
		<i>Units/RL:</i>	% RL				
	Percent Moisture		5.11 1.00				
<b>TPH By SW8015 Mod</b>		<i>Extracted:</i>	Oct-01-12 12:00				
		<i>Analyzed:</i>	Oct-01-12 16:31				
		<i>Units/RL:</i>	mg/kg RL				
	C6-C12 Gasoline Range Hydrocarbons		ND 15.8				
	C12-C28 Diesel Range Hydrocarbons		72.0 15.8				
	C28-C35 Oil Range Hydrocarbons		ND 15.8				
	Total TPH		72.0 15.8				

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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Version: 1.1%

*Alejandro Montoya*

Alejandro Montoya  
Odessa Laboratory Director



## 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 affect the recovery of the spike concentration. This condition could also affect 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 quantitation limit and above the detection limit.
  - 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.
- \* Surrogate recovered outside laboratory control limit.
- BRL** Below Reporting Limit.
- RL** Reporting Limit
- MDL** Method Detection Limit      **SDL** Sample Detection Limit      **LOD** Limit of Detection
- PQL** Practical Quantitation Limit      **MQL** Method Quantitation Limit      **LOQ** Limit of Quantitation
- DL** Method Detection Limit
- NC** Non-Calculable
- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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## Form 2 - Surrogate Recoveries

Project Name: L-5(8"line)

Work Orders : 449822,

Project ID: (RP-2334)

Lab Batch #: 897637

Sample: 449822-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/28/12 15:18

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0241	0.0300	80	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

Lab Batch #: 897742

Sample: 449822-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/01/12 16:31

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.5	100	87	70-135	
o-Terphenyl	41.8	50.0	84	70-135	

Lab Batch #: 897637

Sample: 627872-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/28/12 14:12

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0267	0.0300	89	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 897742

Sample: 627936-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/01/12 14:32

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.7	99.9	94	70-135	
o-Terphenyl	46.2	50.0	92	70-135	

Lab Batch #: 897637

Sample: 627872-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/28/12 13:14

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0310	0.0300	103	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	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: L-5(8"line)

Work Orders : 449822,

Project ID: (RP-2334)

Lab Batch #: 897742

Sample: 627936-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/01/12 15:01

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	100	100	70-135	
o-Terphenyl	53.2	50.0	106	70-135	

Lab Batch #: 897637

Sample: 627872-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 09/28/12 13:51

### 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	0.0323	0.0300	108	80-120	

Lab Batch #: 897742

Sample: 627936-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/01/12 15:29

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	100	106	70-135	
o-Terphenyl	56.7	50.0	113	70-135	

Lab Batch #: 897637

Sample: 449822-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/28/12 17:33

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 897742

Sample: 449818-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/02/12 00:22

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	47.9	50.0	96	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: L-5(8"line)

Work Orders : 449822,

Project ID: (RP-2334)

Lab Batch #: 897637

Sample: 449822-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 09/28/12 17:33

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 897742

Sample: 449818-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/02/12 00:52

### SURROGATE RECOVERY STUDY

TPH By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	100	99.8	100	70-135	
o-Terphenyl	46.8	49.9	94	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: L-5(8"line)

Work Order #: 449822

Analyst: KEB

Lab Batch ID: 897637

Sample: 627872-1-BKS

Batch #: 1

Date Prepared: 09/28/2012

Project ID: (RP-2334)

Date Analyzed: 09/28/2012

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Units: mg/kg												
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
Analytes												
Benzene		<0.000998	0.0998	0.107	107	0.0998	0.0975	98	9	70-130	35	
Toluene		<0.00200	0.0998	0.108	108	0.0998	0.0971	97	11	70-130	35	
Ethylbenzene		<0.000998	0.0998	0.102	102	0.0998	0.0932	93	9	71-129	35	
m_p-Xylenes		<0.00200	0.200	0.222	111	0.200	0.205	103	8	70-135	35	
o-Xylene		<0.000998	0.0998	0.109	109	0.0998	0.100	100	9	71-133	35	

Analyst: KEB

Lab Batch ID: 897742

Sample: 627936-1-BKS

Batch #: 1

Date Prepared: 10/01/2012

Date Analyzed: 10/01/2012

Matrix: Solid

Units: mg/kg

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	<15.0	1000	991	99	1000	1020	102	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	980	98	1000	1010	101	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



Project Name: L-5(8"line)

Work Order #: 449822

Lab Batch ID: 897637

Date Analyzed: 09/28/2012

Reporting Units: mg/kg

Project ID: (RP-2334)

QC- Sample ID: 449822-001 S Batch #: 1 Matrix: Soil

Date Prepared: 09/28/2012 Analyst: KEB

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

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	<0.00105	0.105	0.0897	85	0.105	0.0900	86	0	70-130	35	
Toluene	<0.00209	0.105	0.0844	80	0.105	0.0848	81	0	70-130	35	
Ethylbenzene	<0.00105	0.105	0.0707	67	0.105	0.0710	68	0	71-129	35	X
m_p-Xylenes	<0.00209	0.209	0.150	72	0.210	0.150	71	0	70-135	35	
o-Xylene	<0.00105	0.105	0.0750	71	0.105	0.0753	72	0	71-133	35	

Lab Batch ID: 897742

Date Analyzed: 10/02/2012

Reporting Units: mg/kg

QC- Sample ID: 449818-001 S Batch #: 1 Matrix: Soil

Date Prepared: 10/01/2012 Analyst: KEB

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod  Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	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
C6-C12 Gasoline Range Hydrocarbons	<18.8	1250	1230	98	1250	1220	98	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<18.8	1250	1250	100	1250	1240	99	1	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 ApplicableN = See Narrative, EQL = Estimated Quantitation Limit

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



# Sample Duplicate Recovery

**Project Name:** L-5(8"line)

**Work Order #:** 449822

**Lab Batch #:** 897752

**Project ID:** (RP-2334)

**Date Analyzed:** 10/01/2012 14:30

**Date Prepared:** 10/01/2012

**Analyst:** WRU

**QC- Sample ID:** 449829-001 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	1.21	1.05	14	15	

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

## Prelogin/Nonconformance Report- Sample Log-In



**Client:** Southern Union Gas Services- Monahan

**Date/ Time Received:** 09/27/2012 02:56:00 PM

**Work Order #:** 449822

**Acceptable Temperature Range:** 0 - 6 degC

**Air and Metal samples Acceptable Range:** Ambient

**Temperature Measuring device used :**

### Sample Receipt Checklist

### Comments

#1 *Temperature of cooler(s)?	4.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	No
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	Yes
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	Yes
#21 <2 for all samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ?	Yes
#22 >10 for all samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH?	Yes

**\* Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:

Date: 09/27/2012

Checklist reviewed by:

Date: 09/27/2012