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REMEDIATION SUMMARY AND

Results you

APPROVED

PROPOSED RISK-BASED SITE CLOSURE STRAGEY

ETC FIELD SERVICES, LLC

(Formerly known as Southern Union Gas Services and Regency Field Services, LLC) 4 Inch Lateral (2/18/13) Lea County, New Mexico UNIT LTR "A" (NE ¼ /NE ¼), Section 17, Township 25 South, Range 37 East Latitude 32° 08.142' North, Longitude 103° 10.729' West NMOCD Reference # 1RP-2904

HOBBS OCD

Prepared For:

NOV 1 9 2015

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RECEIVED

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November 2015

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INTRODUCTION

TRC Environmental Corporation (TRC) formerly NOVA Safety and Environmental (NOVA), on behalf of ETC Field Services, LLC (ETC), formerly known as Southern Union Gas Services (SUGS) and Regency Field Services, LLC (Regency), has prepared this Remediation Summary and Proposed Risk-Based Site Closure Strategy for the Release Site known as 4 Inch Lateral (2/18/13). The legal description of the Release Site is Unit Letter "A" (NE ¹/₄ NE ¹/₄), Section 17, Township 25 South, Range 37 East, in Lea County, New Mexico. The property affected by the release is owned by The Woolworth Trust. The Release Site GPS coordinates are 32° 08.142' North and 103° 10.729' West. Please reference Figure 1 for the Site Location Map and Figure 2 for the Site Details and Confirmation Soil Sample Location Map. The Release Notification and Corrective Action (Form C-141) is provided as Appendix D.

On February 18, 2013, SUGS discovered a crude oil, produced water, and natural gas release from a four (4)-inch steel pipeline. The release fluid flowed from the release point to the south approximately two hundred (200) feet. The release was reported to the New Mexico Oil Conservation Division (NMOCD) on February 18, 2013. During initial response activities, SUGS installed a temporary pipeline clamp on the pipeline to mitigate the release. Approximately twenty-five (25) barrels of fluid was released from the pipeline, with no recovery. Approximately sixty (60) cubic yards (cy) of heavily saturated soil was excavated from the release flowpath and placed on a plastic liner. On February 25, 2013, the heavily saturated stockpiled soil was transported to Sundance Services in Eunice, New Mexico. General photographs of the site are provided as Appendix B.

NMOCD SITE CLASSIFICATION

According to data obtained from the New Mexico Office of the State Engineer (NMOSE), one (1) water well is registered in Section 17, Township 25S, Range 37E. The water well is located in Unit Letter "M" of Section 17, was installed in 1920 and no information is available as to the depth to groundwater in the water well. A depth to groundwater reference map utilized by the NMOCD indicates groundwater should be encountered at approximately eighty (80) feet below ground surface (bgs), according to the NMOCD Hobbs District Office. The depth to groundwater at the 4 Inch Lateral (2/18/13) Release Site results in ten (10) points being assigned to the site based on the NMOCD depth to groundwater criteria.

The water well database, maintained by the NMOSE, indicated there are no water wells less than 1,000 feet from the release, resulting in zero (0) points being assigned to this site as a result of this criteria.

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

The NMOCD guidelines indicate the 4-Inch Lateral (2/18/13) Release Site has a ranking score of ten (10). Based on this score, the soil remediation levels for a site with a ranking score of ten (10) points are as follows:

- Benzene 10 mg/Kg (ppm)
- BTEX 50 mg/Kg (ppm)
- TPH 1,000 mg/Kg (ppm)

The NMOCD chloride cleanup level concentrations are site specific and will be determined by the NMOCD Hobbs District Office.

SUMMARY OF SOIL REMEDIATION ACTIVITIES

On March 19, 2013, following initial response activities, delineation and excavation of the impacted soil began at the Release Site. Soil samples were periodically collected, field screened for concentrations of chloride and the selected soil samples were submitted to the laboratory for analysis. Please reference Figure 2 for site details and soil sampling locations.

On March 19, 2013, a soil sample (RP Baseline) was collected beneath the release point. The soil sample was submitted to the laboratory and was analyzed for concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX) using EPA Method SW 846-8021b, Total Petroleum Hydrocarbons (TPH) using EPA Method SW 846-8015M and chloride using EPA Method E 300.0. The analytical results indicated the benzene concentration was less than the laboratory Method Detection Limit (MDL) of 0.00107 mg/Kg, the BTEX concentration was less than the laboratory MDL of 0.00214 mg/Kg, the TPH concentration was 297 mg/Kg and the chloride concentration was 2,140 mg/Kg. Table 1 summarizes the Concentrations of Benzene, BTEX, TPH, and Chlorides in Soil. Analytical reports are provided as Appendix A.

In addition, a five (5) point composite stockpile soil sample (SP Baseline) was collected from a soil stockpile adjacent to the release point. The analytical results indicated the benzene and BTEX concentrations of the stockpile were less than the laboratory MDL. The TPH concentration of the stockpiled soil was 264.7 mg/Kg and the chloride concentration was 2,165 mg/Kg.

On March 21, 2013, a trench was advanced adjacent to the release point to investigate the vertical depth of impact at the release point. Soil samples (RP-1 @ 8', RP-2 @ 10', RP-3 @ 15') were collected at eight (8) feet below ground surface (bgs), ten (10) feet bgs and fifteen (15) feet bgs as the trench was advanced. The soil samples were submitted to the laboratory and the analytical results indicated soil sample RP-1 @ 8' exhibited a benzene, BTEX and TPH concentration less than the laboratory MDL. Chloride analysis indicated soil samples RP-1 @ 8', RP-2 @ 10' and RP-3 @ 15' exhibited concentrations of 663 mg/Kg, 775 mg/Kg and 4,840 mg/Kg, respectively. Please refer to Figure 2 for soil sample locations.

Based on the analytical results of the investigation trench, vertical delineation of the Release Site could not be achieved using an excavator. Horizontal delineation of Release Site continued to the north, south and west of the release point. Impacted soil from the surface to four (4) feet bgs was excavated and stockpiled on site. An investigation trench was utilized to delineate impacted soil at depths greater than four (4) feet bgs. Soil adjacent to and northeast of the release point was left in-situ to allow for mobilization of a drilling rig to advance a soil boring. Soil investigation activities and results will be discussed below.

On March 22, 2013, two (2) soil samples (WW-1 @ 3' and WW-1 @ 14') were collected from the west sidewall of the excavation and delineation trench. The soil samples were submitted to the laboratory and analytical results indicated benzene, BTEX and TPH concentrations were less the laboratory MDL. The analytical results indicated chloride concentrations for soil sample WW-1 @ 3' and WW-1 @ 14' were 437 mg/Kg and 193 mg/Kg, respectively. Based on the analytical results, soil represented by soil sample WW-1 @ 3' was excavated and stockpiled on site as the excavation progressed an additional five (5) feet to the west. Based on the analytical results, the delineation trench was not advanced to the west. Please refer to Figure 2 for soil sample locations.

An additional soil sample (WW-1A @ 3') was collected from the west sidewall of the excavation. The soil sample was submitted to the laboratory and analytical results indicated the benzene, BTEX and TPH concentrations were less the laboratory MDL and the chloride concentration was 1,320 mg/Kg. Based on the analytical results, soil represented by soil sample WW-1A @ 3' was excavated and stockpiled on site as the excavation progressed an additional five (5) feet to the west.

An additional soil sample (WW-1B @ 3') was collected from the west sidewall of the excavation. The soil sample were submitted to the laboratory and analytical results indicated the benzene, BTEX and TPH concentrations was less the laboratory MDL. The analytical results indicated the chloride concentration was 856 mg/Kg. Based on the analytical results, soil represented by soil sample WW-1B @ 3' was excavated and stockpiled on site as the excavation progressed an additional five (5) feet to the west. Please refer to Figure 2 for soil sample locations. Please refer to Figure 2 for soil sample locations.

On March 25, 2013, an additional soil sample (WW-1C @ 3') was collected from the west sidewall of the excavation. The soil sample was submitted to the laboratory and analytical results indicated the benzene, BTEX and TPH concentrations was less the laboratory MDL. The analytical results indicated the chloride concentration was 679 mg/Kg. Based on the analytical results, soil represented by soil sample WW-1C @ 3' was excavated and stockpiled on site as the excavation progressed an additional five (5) feet to the west.

An additional soil sample (WW-1D @ 3') was collected from the west sidewall of the excavation. The soil sample was submitted to the laboratory and analytical results indicated the benzene, BTEX and TPH concentrations was less the laboratory MDL. The analytical results indicated the chloride concentration was 73.6 mg/Kg. Based on the analytical results, no additional excavation was warranted on the west sidewall of the excavation. Please refer to Figure 2 for soil sample locations.

The excavation and delineation trench progressed to the south; periodic soil sampling and chloride field screening indicated chloride concentrations exceeded the NMOCD regulatory guidelines for the Release Site.

On April 2, 2013, two (2) soil samples (SW-1@3' and SW-1@15') were collected from the south sidewall of the excavation. The soil samples were submitted to the laboratory and analytical results indicated benzene, BTEX and TPH concentrations were less the laboratory MDL. The analytical results indicated chloride concentrations for SW-1 @ 3' and SW-1 @ 15' were 441 mg/Kg and 340 mg/Kg, respectively. Based on the analytical results, the delineation trench was extended

approximately ten (10) feet to the south and resampled. Soil excavated from the delineation trench was added to the existing soil stockpile.

Soil samples SW-1A@3' and SW-1A@15' were collected from the south sidewall of the excavation and submitted to the laboratory for analysis. The analytical results indicated soil samples SW-1A@3' and SW-1A@15' exhibited chloride concentrations of 154 mg/Kg and 393 mg/Kg, respectively. Based on the analytical results the delineation trench was extended approximately ten (10) feet to the south and resampled. Soil excavated from the trench was added to the existing soil stockpile.

Soil samples SW-1B@3' and SW-1B@15' were collected from the south sidewall and submitted to the laboratory for analysis. The analytical results indicated soil samples SW-1B@3' and SW-1B@15' exhibited chloride concentrations of 236 mg/Kg and 119 mg/Kg, respectively. Based on the analytical results of soil samples submitted to the laboratory the southernmost horizontal extent of impact was delineated. Please refer to Figure 2 for soil sample locations.

On April 3, 2013, delineation of the northernmost extent of impact commenced, soil samples (NWW-1@3' and NWW-1@15') were collected from the northwest sidewall of the excavation. The soil samples were submitted to the laboratory and analytical results indicated benzene, BTEX and TPH concentrations were less the laboratory MDL. The analytical results indicated soil samples NWW-1 @ 3' and NWW-1 @ 15' exhibited chloride concentration of 120 mg/Kg and 760 mg/Kg, respectively. Based on the analytical results the delineation trench was extended approximately five (5) feet to the northwest and resampled. Soil excavated from the trench was added to the existing soil stockpile.

Soil sample NWW-1A@15' was collected from the northwest sidewall of the delineation trench and submitted to the laboratory for analysis. The analytical results indicated the soil sample (NNW-1A@15') exhibited a chloride concentration of 97 mg/Kg. Based on the analytical results the delineation trench was terminated. Based on chloride field screening, it was determined chloride concentrations exceeding NMOCD regulatory guidelines were present at depths above four (4) feet bgs. Delineation and excavation continued approximately twenty (20) feet to the northwest. A soil sample (NWW-1B@3') was collected from the northwest sidewall of the excavation and submitted to the laboratory for chloride analysis. The analytical results the soil sample exhibited a chloride concentration of 1,220 mg/Kg. Based on the analytical results, delineation and excavation continued approximately fifteen (15) feet to the northwest. A soil sample (NWW-1C@3') was collected from the sidewall of the excavation and submitted to the laboratory. The analytical results indicated the soil sample exhibited a chloride concentration of 13.1 mg/Kg. Based on the analytical results of soil samples submitted to the laboratory the northwestern most horizontal extent of impact appears to be delineated. Please refer to Figure 2 for soil sample locations.

As stated above, the area adjacent to and east of the release point was not disturbed to allow a soil boring to be advanced at a future date. A delineation trench was advanced to the east of the undisturbed area to delineate the easternmost extent of horizontal impact.

On April 3, 2013, two (2) soil samples (EW-1@3' and EW-1@15') were collected from the east sidewall of the delineation trench. The analytical results indicated soil samples EW-1@3' and EW-1@15' exhibited benzene, BTEX and TPH concentration less than the laboratory MDL. Chloride

analysis indicated soil samples EW-1@3' and EW-1@15' exhibited chloride concentrations of 3,910 mg/Kg and 1,150 mg/Kg, respectively. Based on the analytical results, the delineation trench was advanced an additional five (5) feet to the east, excavated soil was added to the existing stockpile. A soil sample (EW-1A@15') was collected from the east sidewall of the delineation trench and submitted to the laboratory for chloride analysis. The analytical results indicated the soil sample exhibited a chloride concentration of 1,070 mg/Kg. Based on the analytical results, the delineation trench was advanced an additional five (5) feet to the east. Following advancement of the delineation trench, two (2) soil samples (EW-1B3' and EW-1B@15') were collected from the east sidewall of the delineation trench and submitted to the laboratory for chloride to the laboratory for chloride concentrations of 221 mg/Kg and 165 mg/Kg, respectively. Based on the analytical results of soil samples submitted to the laboratory the easternmost extent of horizontal impact appears to be delineated. Please refer to Figure 2 for soil sample locations.

Following the delineation of the easternmost extent of impact adjacent to the release point, equipment was moved to the south end of the investigation trench to delineate the easternmost extent of impact at the south end of the Release Site. The delineation trench was advanced approximately ten (10) feet to the east of soil sample SW-1B@3'.

On April 5, 2013, two (2) soil samples (EW-2@3' and EW-2@15') were collected and submitted to the laboratory. The analytical results indicated benzene and BTEX concentrations were less than the laboratory MDL. TPH analysis indicated soil sample EW-2@3' exhibited a TPH concentration of 34.5 mg/Kg and soil sample EW-2@15' exhibited a TPH concentration less than the laboratory MDL. Chloride analysis indicated soil samples EW-2@3' and EW-2@15' exhibited chloride concentrations of 2,800 mg/Kg and 4,100 mg/Kg, respectively. Based on the analytical results the delineation trench was advanced approximately thirty (30) feet to the east.

On April 9, 2013, two (2) soil samples (EW-2A@3' and EW-2A@15') were collected and submitted to the laboratory. Chloride analysis indicated soil samples EW-2A@3' and EW-2A@15' exhibited chloride concentrations of 163 mg/Kg and less than the laboratory MDL, respectively. Based on the analytical results of soil samples submitted to the laboratory the easternmost extent of horizontal impact at the south end of the Release Site appears to be delineated. Please refer to Figure 2 for soil sample locations.

Approximately 1,600 cubic yards (cy) of impacted soil was excavated and stockpiled on-site, pending final disposition. The final dimensions of the excavation were approximately two hundred fifty (250) feet in length, ranged from approximately twenty five (25) to one hundred (100) feet in width, and varied in depth from three (3) feet to fifteen (15) feet.

Following excavation and delineation activities, the delineation trenches were backfilled as a safety precaution.

On December 4, 2013, representatives of NOVA and the NMOCD, met in the NMOCD Hobbs District Office and discussed a closure strategy for the Release Site. The NMOCD representative requested three (3) soil boring be advanced at the Release Site to adequately delineate the vertical extent of chloride impact at the Release Site.

On an unknown date, the existing excavation was inadvertently backfilled with soil by another contractor. The analytical status of the backfill soil is unknown, but likely included the approximately 1,600 cy of impacted soil stockpiled on-site, awaiting final disposition.

On February 19, 2014, three (3) soil borings (SB-1 through SB-3) were advanced at the Release Site. Please reference Figure2 for the locations of the soil borings. The soil borings were advanced until chloride field testing and visual and olfactory evidence indicated benzene, BTEX, TPH, and chloride concentrations were less than NMOCD regulatory guidelines for the Release Site. Soil samples were collected at five (5) foot drilling intervals and field screened using a Photo-Ionization Detector (PID) and a chloride field test kit. Selected soil samples were submitted to the laboratory for determination of concentrations of benzene, toluene, ethyl-benzene and xylene (BTEX), total petroleum hydrocarbon (TPH), and chlorides using EPA SW-846 8021b, SW-846 8015M, and E 300.1, respectively.

Soil boring SB-1 was advanced immediately east of the release point to a depth of approximately thirty-five (35) feet bgs. Soil samples collected at ten (10) feet bgs, fifteen (15) feet bgs, twenty (20) feet bgs, twenty-five (25) feet bgs, thirty (30) feet bgs, and thirty-five (35) feet bgs were submitted to the laboratory for analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the laboratory MDL. Chloride concentrations ranged from 68.8 mg/Kg for soil sample SB-1 @ 35' to 1,900 mg/Kg for soil sample SB-1 @ 15'. Based on the analytical results, vertical delineation of chloride impact in soil boring SB-1 was achieved at approximately thirty (30) feet bgs. The soil sample collected at thirty (30) feet bgs exhibited a chloride concentration of 127 mg/Kg. Soil boring logs are provided as Appendix C.

Soil boring SB-2 was advanced in the central area of the Release Site, to a depth of approximately forty (40) feet bgs. Soil samples were collected at ten (10) feet bgs, fifteen (15) feet bgs, twenty (20) feet bgs, twenty-five (25) feet bgs, thirty (30) feet bgs, thirty-five (35) feet bgs, and forty (40) feet bgs and submitted to the laboratory for analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the laboratory MDL. Chloride concentrations ranged from 85.6 mg/Kg for soil sample SB-2 @ 40' to 4,740 mg/Kg for soil sample SB-2 @ 10'. Based on the analytical results, vertical delineation of chloride impact in soil boring SB-2 was achieved at approximately forty (40) feet bgs. The soil sample collected at forty (40) feet bgs exhibited at chloride concentration of 85.6 mg/Kg.

Soil boring SB-3 was advanced in the southern area the Release Site, to a depth of approximately thirty-five (35) feet bgs. Soil samples collected at five (5) feet bgs, ten (10) feet bgs, twenty (20) feet bgs, thirty (30) feet bgs, and thirty-five (35) feet bgs were submitted to the laboratory for analysis. The analytical results indicated benzene, BTEX, and TPH concentrations were less than the laboratory MDL. Chloride concentrations ranged from 14.6 mg/Kg for soil sample SB-3 @ 30' to 204 mg/Kg for soil sample SB-3 @ 20'. Based on the analytical results, vertical delineation of chloride impact in soil boring SB-3 was achieved at approximately five (5) feet bgs. The soil sample collected at five (5) feet bgs exhibited at chloride concentration of 25 mg/Kg. Please refer to Figure 2 for soil sample locations.

On March 18, 2014, representatives of NOVA and the NMOCD, met in the NMOCD Hobbs District Office and discussed a closure strategy for the Release Site. The NMOCD representative reviewed the analytical results of the soil samples collected during the soil boring advancement and verbally approved Regency's request to utilize at Risk-Based closure strategy at the 4-Inch Lateral (2/18/13) Release Site. The NMOCD representative approved the excavation of the Release Site to approximately twelve (12) feet bgs. In addition, the NMOCD approved the installation of a twenty (20) millimeter (mil) polyethylene liner at approximately twelve (12) feet bgs.

PROPOSED SOIL CLOSURE STRATEGY

Based on analytical results, ETC requests confirmation to proceed with a Risk-Based Closure Strategy at the 4-Inch Lateral (2/18/13) Release Site. The Release Site will be excavated to approximately twelve (12) feet bgs. Excavated soil will be stockpiled adjacent to the excavation, pending final disposition. When confirmation analytical results of the excavation sidewalls indicate benzene, BTEX, TPH, and chloride concentrations are less than the regulatory guidelines for the Release Site, a twenty (20) mil polyurethane liner will be installed at approximately twelve (12) feet bgs. The liner will be cushioned by a six (6) inch layer of sand above and below the liner to protect the liner from damage during backfilling activities. This engineering control will inhibit vertical migration of contaminants below the liner, by the process of shedding moisture to the edge of the liner and beyond the maximum horizontal extent of underlying impacted soil.

Stockpile soil samples will be collected for each five hundred (500) cy yards of excavated soil. The soil samples collected from the stockpiles will be submitted to the laboratory and analyzed for concentrations of benzene, BTEX, TPH, and chloride. In the event, the analytical results indicate benzene, BTEX, TPH, and chloride concentrations are less than 10 mg/Kg, 50 mg/Kg, 1,000 mg/Kg, and 500 mg/Kg, respectively, the stockpiled soil will be utilized as backfill. Should the analytical results indicate the soil stockpile exhibits benzene, BTEX, TPH, or chloride concentrations exceeding the NMOCD regulatory guideline, the stockpile will be transported (under manifest) to a NMOCD approved landfarm or landfill. On NMOCD approval, the excavation will be backfilled with soil deemed suitable by analysis and/or locally purchased non-impacted soil and water compacted in eighteen (18) inch lifts. Following backfill activities the surface will be contoured to fit the surrounding topography.

REPORTING

On completion of the soil closure strategy activities, ETC will submit a Remediation Summary and Risk-Based Site Closure Request for NMOCD approval.

LIMITATIONS

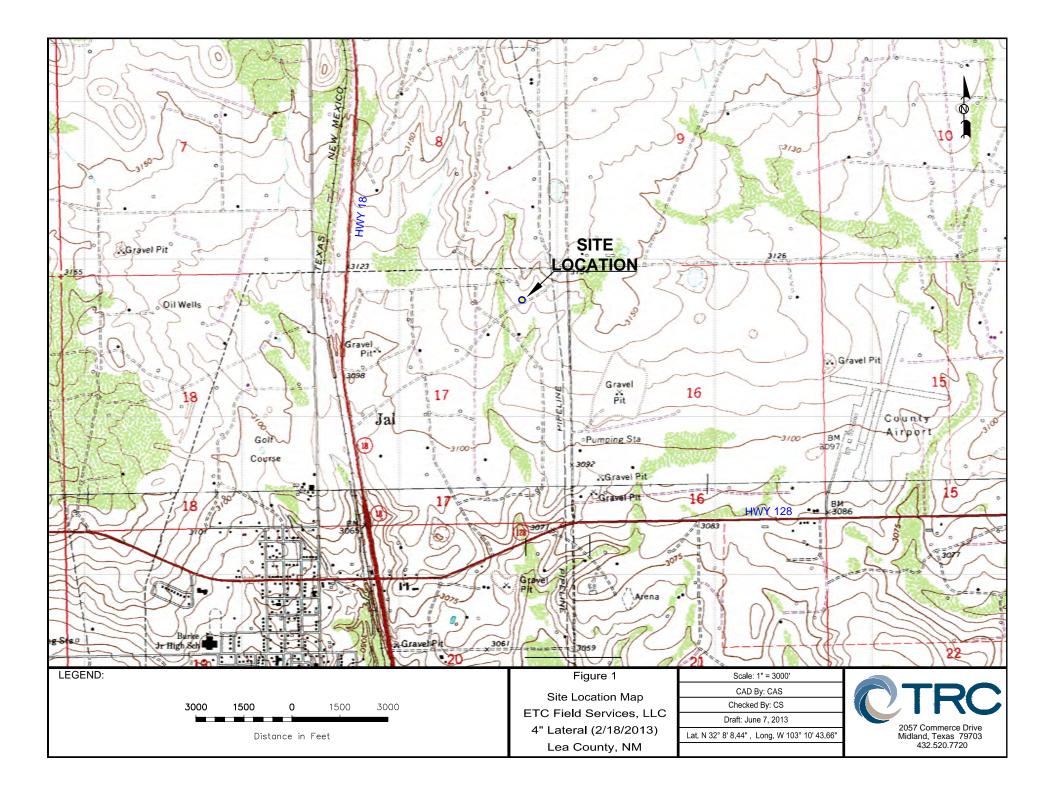
TRC Environmental Corporation has prepared this Remediation Summary and Proposed Site Closure Strategy to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC Environmental Corporation has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC Environmental Corporation has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC Environmental Corporation has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC Environmental Corporation also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of ETC Field Services, LLC. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC Environmental Corporation and/or ETC Field Services, LLC.

DISTRIBUTION

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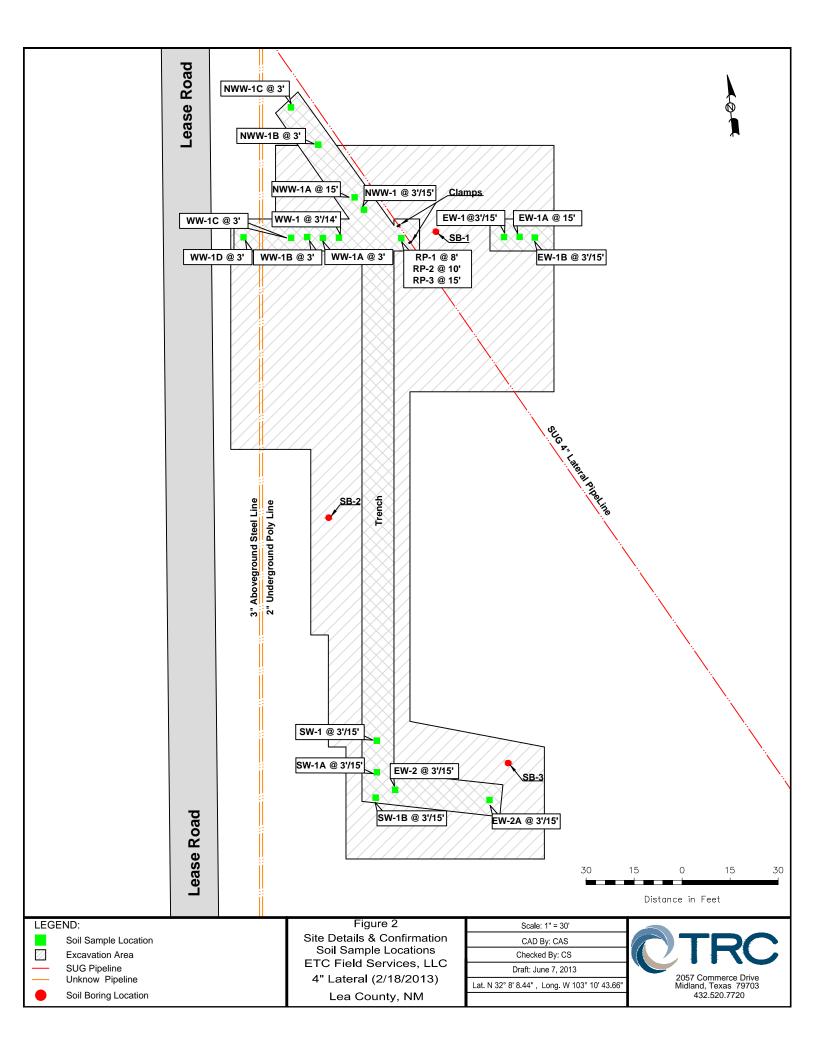


TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL

ETC FIELD SERVICES, LLC 4 INCH LATERAL 2-18-13 RELEASE SITE LEA COUNTY, NEW MEXICO 1RP-02-13-2904

		METHODS: SW 846-8021b							METHOD: S	SW 8015M		E 300.1
SAMPLE LOCATION	SAMPLE			ETHYL-		<u>^</u>	TOTAL	TPH	ТРН	TPH	TOTAL	
SAMPLE LOCATION	DATE	BENZENE	TOLUENE		m, p - XYLENES	0 - XVI ENE	BTEX	GRO	DRO	ORO	TPH	CHLORIDE
				DENZENE				C ₆ -C ₁₂	$C_{12}-C_{28}$	C ₂₈ -C ₃₅	C ₆ -C ₃₅	
RP Baseline	03/19/13	< 0.00107	< 0.00214	< 0.00107	< 0.00214	< 0.00107	< 0.00214	<16.1	297	<16.1	297	2,140
SP Baseline	03/19/13	< 0.00104	< 0.00209	< 0.00104	< 0.00209	< 0.00104	< 0.00209	26.7	238	<15.6	264.7	265
RP-1 @ 8'	03/21/13	< 0.00108	< 0.00216	< 0.00108	< 0.00216	< 0.00108	< 0.00216	<16.1	<16.1	<16.1	<16.1	663
RP-2 @ 10'	03/21/13	-	-	-	-	-	-	-	-	-	-	775
RP-3 @ 15'	03/21/13	-	-	-	-	-	-	-	-	-	-	4,840
WW-1 @ 14'	03/22/13	< 0.00103	< 0.00206	< 0.00103	< 0.00206	< 0.00103	< 0.00206	<25.9	<25.9	<25.9	<25.9	193
WW-1 @ 3'	03/22/13	< 0.00110	< 0.00220	< 0.00110	< 0.00220	< 0.00110	< 0.00220	<16.5	<16.5	<16.5	<16.5	437
WW-1A @ 3'	03/22/13	< 0.00111	< 0.00223	< 0.00111	< 0.00223	< 0.00111	< 0.00223	<16.8	<16.8	<16.8	<16.8	1,320
WW-1B @ 3'	03/22/13	< 0.00108	< 0.00217	< 0.00108	< 0.00217	< 0.00108	< 0.00217	<16.3	<16.3	<16.3	<16.3	856
WW-1C @ 3'	03/25/13	< 0.00111	< 0.00222	< 0.00111	< 0.00222	< 0.00111	< 0.00222	<16.6	<16.6	<16.6	<16.6	679
WW-1D @ 3'	03/25/13	< 0.00104	< 0.00207	< 0.00104	< 0.00207	< 0.00104	< 0.00207	<15.6	<15.6	<15.6	<15.6	73.6
SW-1 @ 3'	04/02/13	< 0.00106	< 0.00213	< 0.00106	< 0.00213	< 0.00106	< 0.00213	<15.9	<15.9	<15.9	<15.9	441
SW-1 @ 15'	04/02/13	< 0.00106	< 0.00212	< 0.00106	< 0.00212	< 0.00106	< 0.00212	<16.1	<16.1	<16.1	<16.1	340
SW-1A @ 3'	04/02/13	-	-	-	-	-	-	-	-	-	-	154
SW-1A @ 15'	04/02/13	-	-	-	-	-	-	-	-	-	-	393
SW-1B @ 3'	04/02/13	-	-	-	-	-	-	-	-	-	-	236
SW-1B @ 15'	04/02/13	-	-	-	-	-	-	-	-	-	-	119
NWW-1 @ 3'	04/03/13	< 0.00106	< 0.00212	< 0.00106	< 0.00212	< 0.00106	< 0.00212	<15.8	<15.8	<15.8	<15.8	120
NWW-1 @15'	04/03/13	< 0.00104	< 0.00209	< 0.00104	< 0.00209	< 0.00104	< 0.00209	<15.7	<15.7	<15.7	<15.7	760
NWW-1A @ 15'	04/03/13	-	-	-	-	-	-	-	-	-	-	97.0
NWW-1B @ 3'	04/03/13	-	-	-	-	-	-	-	-	-	-	1,220
NWW-1C @ 3'	04/03/13	-	-	-	-	-	-	-	-	-	-	13.1
EW -1 @ 3'	04/03/13	< 0.00110	< 0.00221	< 0.00110	< 0.00221	< 0.00110	< 0.00221	<16.6	<16.6	<16.6	<16.6	3,910
EW -1 @ 15'	04/03/13	< 0.00102	< 0.00204	< 0.00102	< 0.00204	< 0.00102	< 0.00204	<15.5	<15.5	<15.5	<15.5	1,150
EW-1A @ 15'	04/03/13	-	-	-	-	-	-	-	-	-	-	1,070
EW-1B @ 3'	04/03/13	-	-	-	-	-	-	-	-	-	-	221
EW-1B @ 15'	04/03/13	-	-	-	-	-	-	-	-	-	-	165
EW-2 @ 3'	04/05/13	< 0.00107	< 0.00214	< 0.00107	< 0.00214	< 0.00107	< 0.00214	<15.9	34.5	<15.9	34.5	2,800

All concentrations are reported in mg/Kg

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL

ETC FIELD SERVICES, LLC 4 INCH LATERAL 2-18-13 RELEASE SITE LEA COUNTY, NEW MEXICO 1RP-02-13-2904

				METHODS: SW 846-8021b					METHOD: SW 8015M			
SAMPLE LOCATION	SAMPLE DATE	BENZENE	TOLUENE	ETHYL- BENZENE	m, p - XYLENES	o - XYLENE	TOTAL BTEX	TPH GRO C ₆ -C ₁₂	TPH DRO C ₁₂ -C ₂₈	TPH ORO C ₂₈ -C ₃₅	TOTAL TPH C ₆ -C ₃₅	CHLORIDE
EW-2 @ 15'	04/05/13	< 0.00109	< 0.00218	< 0.00109	< 0.00218	< 0.00109	< 0.00218	<16.2	<16.2	<16.2	<16.2	4,110
EW-2A @ 3'	04/09/13	-	-	-	-	-	-	-	-	-	-	163
EW-2A @ 15'	04/09/13	-	-	-	-	-	-	-	-	-	-	<20.0
SB-1 @ 10'	02/19/14	< 0.00104	< 0.00209	< 0.00104	< 0.00209	< 0.00104	< 0.00209	<15.7	<15.7	<15.7	<15.7	1,190
SB-1 @ 15'	02/19/14	< 0.00104	< 0.00208	< 0.00104	< 0.00208	< 0.00104	< 0.00208	<15.6	<15.6	<15.6	<15.6	1,900
SB-1 @ 20'	02/19/14	< 0.00102	< 0.00205	< 0.00102	< 0.00205	< 0.00102	< 0.00205	<15.4	<15.4	<15.4	<15.4	1,840
SB-1 @ 25'	02/19/14	< 0.00104	< 0.00207	< 0.00104	< 0.00207	< 0.00104	< 0.00207	<15.7	<15.7	<15.7	<15.7	596
SB-1 @ 30'	02/19/14	< 0.00104	< 0.00207	< 0.00104	< 0.00207	< 0.00104	< 0.00207	<15.6	<15.6	<15.6	<15.6	127
SB-1 @ 35'	02/19/14	< 0.00103	< 0.00206	< 0.00103	< 0.00206	< 0.00103	< 0.00206	<15.5	<15.5	<15.5	<15.5	68.8
SB-2 @ 10'	02/19/14	< 0.00105	< 0.00210	< 0.00105	< 0.00210	< 0.00105	< 0.00210	<15.7	<15.7	<15.7	<15.7	4,740
SB-2 @ 15'	02/19/14	< 0.00103	< 0.00207	< 0.00103	< 0.00207	< 0.00103	< 0.00207	<15.6	<15.6	<15.6	<15.6	1,720
SB-2 @ 20'	02/19/14	< 0.00108	< 0.00216	< 0.00108	< 0.00216	< 0.00108	< 0.00216	<16.3	<16.3	<16.3	<16.3	824
SB-2 @ 25'	02/19/14	< 0.00104	< 0.00207	< 0.00104	< 0.00207	< 0.00104	< 0.00207	<15.5	<15.5	<15.5	<15.5	840
SB-2 @ 30'	02/19/14	< 0.00105	< 0.00211	< 0.00105	< 0.00211	< 0.00105	< 0.00211	<15.8	<15.8	<15.8	<15.8	268
SB-2 @ 35'	02/19/14	< 0.00110	< 0.00220	< 0.00110	< 0.00220	< 0.00110	< 0.00220	<16.5	<16.5	<16.5	<16.5	420
SB-2 @ 40'	02/19/14	< 0.00121	< 0.00243	< 0.00121	< 0.00243	< 0.00121	< 0.00243	<18.2	<18.2	<18.2	<18.2	85.6
SD 2 @ 5!	02/19/14	< 0.00104	< 0.00208	< 0.00104	< 0.00208	< 0.00104	< 0.00208	<15.7	<15.7	<15.7	<15.7	25.0
SB-3 @ 5'	02/19/14	<0.00104	<0.00208	<0.00104	<0.00208	<0.00104	<0.00208	<15.7	<15.7	<15.7	<15.7	152
SB-3 @ 10'	02/19/14	<0.00104	<0.00208	<0.00104	<0.00208	<0.00104	<0.00208	<15.6	<15.6	<15.6	<15.6	204
SB-3 @ 20'	02/19/14	<0.00104	< 0.00208	<0.00104	<0.00208	<0.00104	<0.00208	<15.7	<15.7	<15.7	<15.7	204 14.6
SB-3 @ 30' SB-3 @ 35'	02/19/14	<0.00102	<0.00204	<0.00102	<0.00204	<0.00102	<0.00204	<15.4	<15.4	<15.4	<15.4	52.6

All concentrations are reported in mg/Kg

Analytical Report 459605

for

Southern Union Gas Services- Monahans

Project Manager: Becky Haskell

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

21-MAR-13

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)



21-MAR-13



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

Reference: XENCO Report No(s): **459605 SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904** Project Address: Lea County, NM

Becky Haskell:

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(s) 459605. 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. 459605 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

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Sample Cross Reference 459605



Southern Union Gas Services- Monahans, Monahans, TX

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
RP Baseline	S	03-19-13 13:00		459605-001
SP Baseline	S	03-19-13 13:30		459605-002



CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Project ID: Work Order Number(s): 459605 Report Date: 21-MAR-13 Date Received: 03/20/2013

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None



Project Id:

Contact: Becky Haskell Project Location: Lea County, NM

Certificate of Analysis Summary 459605

Southern Union Gas Services- Monahans, Monahans, TX

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Date Received in Lab: Wed Mar-20-13 09:14 am

Report Date: 21-MAR-13

Project Manager: Nicholas Straccione

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Analysis Requested Depuis Production Depuis Solution Depuis		Lab Id:	459605-0	001	459605-0	02		
		Field Id:	RP Base	line	SP Baseli	ne		
Image	Analysis Requested	Depth:						
BTEX by EPA 8021B $k_rracet.Analyzet Mar-20.13 \ 21.37(mar-20.13 21:37) Mar-20.13 \ 21.37(mar-20.13 20.00007) Mar-20.13 \ 20.00007 Mar-20.13 \ 20.00007$		Matrix:	SOIL	,	SOIL			
BTEX by EPA 8021B $k_rracet.Analyzet Mar-20-13 21:37(Mar-20-13 21:37) Mar-20-13 21:37(Mar-20-13 20:07) Mar-20-13 20:07 Mar-20-13 21:37(Mar-20-13 12:00) Mar-20-13 12:07 Mar-20-13$		Sampled:	Mar-19-13	13:00	Mar-19-13	13:30		
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Toluene NN 0.0017 NN 0.00104 CNN 0.00107 NN 0.01017 NN 0.01017 NN 0.01017 NN 0.01017 NN 0.01017 NN 0.01017 NN <		Units/RL:						
Instrume ND								
mp-Xylenes ND 0.0021 ND 0.00101 ND 0.00104 Component of the	Toluene							
O-Xylene ND 0.00107 ND 0.00104 Image: Constraint of the strate of the strat	5							
Total Xylenes ND 0.00107 ND 0.00104 Control Cont Cont<			ND					
Total BTEX ND OUOD ND OUDD ND OUDD Mar OUDD Mar OUDD Mar OUDD Mar								
Inorganic Anions by EPA 300/300.1 Extracted Analyzed Mar-21-13 07:04 Mar-20-13 12:00 Mar-21-13 07:25 Mar-20-13 17:00 Mar-20-13 07:25 0 mir/L mg/kg RL Mar-20-13 07:25 Mar-20-13 17:00 M	Total Xylenes		ND	0.00107	ND	0.00104		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Total BTEX	Total BTEX		0.00107	ND	0.00104		
Image Image RL Image	Inorganic Anions by EPA 300/300.1	Extracted:	Mar-20-13	12:00	Mar-20-13	12:00		
Chloride 2140 40.0 265 10.0 Indexted		Analyzed:	Mar-21-13	07:04	Mar-21-13 (07:25		
Percent Moisture Extracte: Mar-20-13 17:00 Mar-2		Units/RL:	mg/kg	RL	mg/kg	RL		
Analyzet:Mar-20-13 \cdot .00Mar-20-13	Chloride		2140	40.0	265	10.0		
Units/RL: % RL	Percent Moisture	Extracted:						
Percent Moisture 7.26 1.00 4.30 1.00 Image: 1.00 </td <td></td> <td>Analyzed:</td> <td>Mar-20-13</td> <td>17:00</td> <td>Mar-20-13</td> <td>17:00</td> <td></td> <td></td>		Analyzed:	Mar-20-13	17:00	Mar-20-13	17:00		
TPH By SW8015 Mod Extractel: Mar-20-13 15:00 Mar-20-13 15:00 Mar-20-13 15:00 Mar-20-13 02:01 Mar-20-13 02:		Units/RL:	%	RL	%	RL		
Analyzei: Mar-21-13 U:33 Mar-21-13 U:01 Units/RL: mg/kg RL mg/kg RL C6-C12 Gasoline Range Hydrocarbons ND 16.1 26.7 15.6 C12-C28 Diesel Range Hydrocarbons 297 16.1 238 15.6 C28-C35 Oil Range Hydrocarbons ND 16.1 ND 15.6	Percent Moisture		7.26	1.00	4.30	1.00		
Units/RL: mg/kg RL mg/kg	TPH By SW8015 Mod	Extracted:	Mar-20-13	15:00	Mar-20-13	15:00		
C6-C12 Gasoline Range Hydrocarbons ND 16.1 26.7 15.6 Image: Model and March an		Analyzed:	Mar-21-13	01:33	Mar-21-13 (02:01		
C12-C28 Diesel Range Hydrocarbons 297 16.1 238 15.6 Image: C12-C28 Diesel Range Hydrocarbons C12-C28 Diesel Range Hydrocarbons ND 16.1 ND 15.6 Image: C12-C28 Diesel Range Hydrocarbons C12-C28 Diesel Range Hydrocarbons ND 16.1 ND 15.6 Image: C12-C28 Diesel Range Hydrocarbons C12-C28 Diesel Range Hydrocarbons C12-C28 Diesel Range Hydrocarbons ND 15.6 Image: C12-C28 Diesel Range Hydrocarbons C12-C28 Diese Di		Units/RL:	mg/kg	RL	mg/kg	RL		
C28-C35 Oil Range Hydrocarbons ND 16.1 ND 15.6			ND	16.1	26.7	15.6		
	C12-C28 Diesel Range Hydrocarbons		297	16.1	238	15.6		
Total TPH 297 16.1 265 15.6	C28-C35 Oil Range Hydrocarbons		ND	16.1	ND	15.6		
	Total TPH		297	16.1	265	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.

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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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(770) 449-8800	(770) 449-5477
(602) 437-0330	

Final 1.000



Form 2 - Surrogate Recoveries

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Vork Orders : 459605 Lab Batch #: 909459	5, Sample: 459605-001 / SMP	Batcl	Project II h: ¹ Matrix				
Units: mg/kg	Date Analyzed: 03/20/13 21:21			RECOVERY STUDY			
	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
	Analytes			[D]			
1,4-Difluorobenzene		0.0254	0.0300	85	80-120		
4-Bromofluorobenzene		0.0260	0.0300	87	80-120		
Lab Batch #: 909459	Sample: 459605-002 / SMP	Batcl					
Units: mg/kg	Date Analyzed: 03/20/13 21:37	SU.	RROGATE RI	ECOVERY S	STUDY		
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1.4-Difluorobenzene	Analytes	0.0270	0.0200		00.120		
4-Bromofluorobenzene	I	0.0270	0.0300	90 95	80-120 80-120		
					80-120		
Lab Batch #: 909470	Sample: 459605-001 / SMP						
Units: mg/kg	Date Analyzed: 03/21/13 01:33	SURROGATE RECOVERY STUDY					
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane		97.5	99.7	98	70-135		
o-Terphenyl		50.5	49.9	101	70-135		
	g 1 450/05 002 / SMD				10 155		
Lab Batch #: 909470	Sample: 459605-002 / SMP	Batcl	h: 1 Matrix RROGATE RI	-	STUDV		
Units: mg/kg	Date Analyzed: 03/21/13 02:01	50.	KROGATE KI				
TPH]	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane		102	99.6	102	70-135		
o-Terphenyl		51.3	49.8	103	70-135		
Lab Batch #: 909459	Sample: 635403-1-BLK / BL	K Batcl	h: 1 Matrix	:Solid			
Units: mg/kg	Date Analyzed: 03/20/13 20:49	SU	RROGATE RI	ECOVERY S	STUDY		
BTEZ	X 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		

* 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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

'ork Orders : 459605 Lab Batch #: 909470	, Sample: 635407-1-BLK / Bl	LK Batcl	Project I h: 1 Matrix					
Units: mg/kg	Date Analyzed: 03/20/13 23:40		RROGATE R		STUDY			
	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag		
	Analytes			[D]				
1-Chlorooctane		103	99.9	103	70-135			
o-Terphenyl		51.9	50.0	104	70-135			
Lab Batch #: 909459	Sample: 635403-1-BKS / BI	KS Batel	h: ¹ Matrix	:Solid				
Units: mg/kg	Date Analyzed: 03/20/13 20:16	SU	RROGATE R	ECOVERY S	STUDY			
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag		
1,4-Difluorobenzene	Analytes	0.0344	0.0300	115	80-120			
4-Bromofluorobenzene		0.0344	0.0300	113	80-120			
	Secondary 625407 1 PKS / PI							
Lab Batch #: 909470	Sample: 635407-1-BKS / BI		h: ¹ Matrix RROGATE R		STUDV			
Units: mg/kg	Date Analyzed: 03/20/13 22:44	50.	KROGATE K					
TPH By SW8015 Mod		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage		
	Analytes			[D]				
1-Chlorooctane		94.5	99.7	95	70-135			
o-Terphenyl		57.6	49.9	115	70-135			
Lab Batch #: 909459	Sample: 635403-1-BSD / BS	SSD Batch: 1 Matrix: Solid						
Units: mg/kg	Date Analyzed: 03/20/13 20:32	SU	RROGATE R	ECOVERY S	STUDY			
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag		
1,4-Difluorobenzene		0.0283	0.0300	94	80-120			
4-Bromofluorobenzene		0.0292	0.0300	97	80-120			
Lab Batch #: 909470	Sample: 635407-1-BSD / BS	SD Batcl	h: ¹ Matrix	:Solid	<u> </u>			
Units: mg/kg	Date Analyzed: 03/20/13 23:12		RROGATE R		STUDY			
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag		
1-Chlorooctane	ranary wo	100	99.6	100	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 / BAll results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Vork Orders: 459605 Lab Batch #: 909459	5, Sample: 459606-001 S / MS	5 Batcl	Project I h: 1 Matrix			
Units: mg/kg	Date Analyzed: 03/20/13 21:54		RROGATE R	-	STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1,4-Difluorobenzene		0.0311	0.0300	104	80-120	
4-Bromofluorobenzene		0.0304	0.0300	101	80-120	
Lab Batch #: 909470	Sample: 459606-001 S / MS	5 Batcl	h: ¹ Matrix	:Soil		
Units: mg/kg	Date Analyzed: 03/21/13 00:36	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane	Analytes	00.4	00.0		70.125	
o-Terphenyl		99.4 55.4	99.6 49.8	100	70-135	
Lab Batch #: 909459	Sample: 459606-001 SD / N				10 155	
	L		RROGATE R		STUDY	
Units: mg/kg BTE2	Date Analyzed: 03/20/13 22:10 X by EPA 8021B	Amount Found	True Amount	Recovery	Control Limits	Flage
	Analytes	[A]	[B]	%R [D]	%R	
1,4-Difluorobenzene		0.0266	0.0300	89	80-120	
4-Bromofluorobenzene		0.0327	0.0300	109	80-120	
Lab Batch #: 909470	Sample: 459606-001 SD / N	ASD Batcl	h: 1 Matrix	:Soil		
Units: mg/kg	Date Analyzed: 03/21/13 01:04	SU	RROGATE R	ECOVERYS	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		98.7	99.8	99	70-135	
o-Terphenyl		51.2	49.9	103	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459605							Proj	ect ID:			
Analyst: KEB	Da	3		Date Analyzed: 03/20/2013							
Lab Batch ID: 909459 Sample: 635403-1-B	SKS	KS Batch #: 1				Matrix: Solid					
Units: mg/kg		BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY									
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	<0.000992	0.0992	0.106	107	0.0998	0.0841	84	23	70-130	35	
Toluene	<0.000392	0.0992	0.100	107	0.0998	0.0841	83	20	70-130	35	
Ethylbenzene	<0.000992	0.0992	0.103	104	0.0998	0.0775	78	28	71-129	35	
m_p-Xylenes	< 0.00198	0.198	0.196	99	0.200	0.148	74	28	70-135	35	
o-Xylene	<0.000992	0.0992	0.101	102	0.0998	0.0769	77	27	71-133	35	
Analyst: AMB	Da	ate Prepar	ed: 03/20/201	3			Date A	nalyzed: 0	3/21/2013		
Lab Batch ID: 909477 Sample: 635411-1-B	SKS	Batch	n#: 1					Matrix: S	olid		
Units: ^{mg/kg}		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	LICATE 1	RECOVE	RY STUD	Y	
Inorganic Anions by EPA 300/300.1 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
Chloride	<2.00	50.0	50.8	102	50.0	51.9	104	2	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459605 Analyst: KEB		Date Prepared: 03/20/2013						Project ID: Date Analyzed: 03/20/2013						
Lab Batch ID: 909470	Sample: 635407-1-B	1-BKS Batch #: 1					Matrix: Solid							
Units: mg/kg	[BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY								Ŷ				
TPH By SW8015 Mod		Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag		
Analytes			[B]	[C]	[D]	[E]	Result [F]	[G]						
C6-C12 Gasoline Range Hydroc	arbons	<15.0	997	936	94	996	993	100	6	70-135	35			
C12-C28 Diesel Range Hydroca	rbons	<15.0	997	984	99	996	1040	104	6	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459605 Lab Batch #: 909477			Pro	oject ID:			
Date Analyzed: 03/21/2013	Date Prepared: 03/20/2	А	Analyst: AMB				
QC- Sample ID: 459439-001 S	Batch #: 1		Matrix: Soil				
Reporting Units: mg/kg	MATRIX / MATRIX SPIKE RECOVERY STUDY						
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag	
Analytes	[A]	[B]					
Chloride	13.6	73.1	76.7	86	80-120		

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference [E] = 200*(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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459605						Project II	D:					
Lab Batch ID: 909459	QC- Sample ID:	459606	-001 S	Ba	tch #:	1 Matrix	x: Soil					
Date Analyzed: 03/20/2013	Date Prepared:	Analyst: KEB										
Reporting Units: mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021B	Parent Sample Result	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag	
Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD		
Benzene	<0.00106	0.106	0.0864	82	0.106	0.0993	94	14	70-130	35		
Toluene	<0.00211	0.106	0.0798	75	0.106	0.0913	86	13	70-130	35		
Ethylbenzene	<0.00106	0.106	0.0758	72	0.106	0.0917	87	19	71-129	35		
m_p-Xylenes	<0.00211	0.211	0.148	70	0.212	0.174	82	16	70-135	35		
o-Xylene	<0.00106	0.106	0.0755	71	0.106	0.0907	86	18	71-133	35		
Lab Batch ID: 909470	QC- Sample ID:	459606	-001 S	Ba	tch #:	1 Matrix	x: Soil					
Date Analyzed: 03/21/2013	Date Prepared:	03/20/2	013	An	alyst:	KEB						
Reporting Units: mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY			
TPH By SW8015 Mod	Parent Sample Result	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag	
Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD		
C6-C12 Gasoline Range Hydrocarbons	<15.8	1060	1010	95	1060	1010	95	0	70-135	35		
C12-C28 Diesel Range Hydrocarbons	<15.8	1060	1090	103	1060	1080	102	1	70-135	35		

Matrix Spike Percent Recovery $[D] = 100^{\circ}(C-A)/B$ Relative Percent Difference RPD = $200^{\circ}|(C-F)/(C+F)|$ Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E



Sample Duplicate Recovery



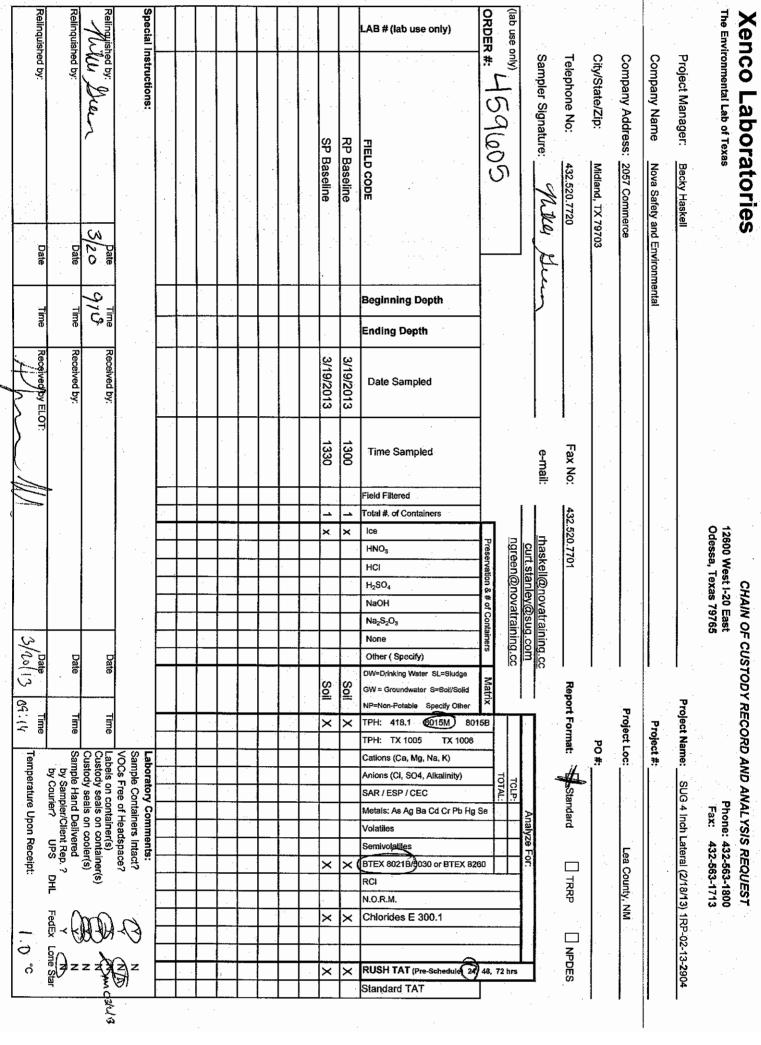
Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459605

Lab Batch #: 909473				Project I	D:	
Date Analyzed: 03/20/2013 17:00	Date Prepar	ed: 03/20/2013	Anal	lyst:WRU		
QC- Sample ID: 459605-001 D	Batch	n#: 1	Mat	rix: Soil		
Reporting Units: %		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte			[B]			
Percent Moisture		7.26	7.31	1	20	

Spike Relative Difference RPD 200 * $|\,(B\text{-}A)/(B\text{+}A)\,|$ All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit





XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Nova Safety & EnvironmentalAcceptable Temperature Range: 0 - 6 degCDate/ Time Received: 03/20/2013 09:14:00 AMAir and Metal samples Acceptable Range: AmbientWork Order #: 459605Temperature Measuring device used :

Sample Receipt Check	list Comments
#1 *Temperature of cooler(s)?	1
#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?	Νο
#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 459844

for Southern Union Gas Services- Monahans

Project Manager: Becky Haskell

SUG 4''Lateral (2/18/13)

29-MAR-13

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)

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29-MAR-13



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

Reference: XENCO Report No(s): **459844 SUG 4''Lateral (2/18/13)** Project Address: Lea County, NM

Becky Haskell:

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(s) 459844. 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. 459844 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

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Sample Cross Reference 459844



Southern Union Gas Services- Monahans, Monahans, TX

SUG 4"Lateral (2/18/13)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
RP-1 @ 8'	S	03-21-13 15:00		459844-001
RP-2 @ 10'	S	03-21-13 15:05		459844-002
RP-3 @ 15'	S	03-21-13 15:10		459844-003



CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: SUG 4''Lateral (2/18/13)



Project ID: Work Order Number(s): 459844 Report Date: 29-MAR-13 Date Received: 03/22/2013

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-910129 BTEX by EPA 8021B SW8021BM

Batch 910129, Ethylbenzene, m_p-Xylenes recovered below QC limits in the Matrix Spike Duplicate. Samples affected are: 459844-001.

The Laboratory Control Sample for Ethylbenzene, m_p-Xylenes is within laboratory Control Limits



Project Id: Contact: Becky Haskell Project Location: Lea County, NM

Certificate of Analysis Summary 459844

Southern Union Gas Services- Monahans, Monahans, TX

Project Name: SUG 4"Lateral (2/18/13)



Date Received in Lab: Fri Mar-22-13 03:58 pm

Report Date: 29-MAR-13

Project Manager: Nicholas Straccione

								 i nenotas stracetone	
	Lab Id:	459844-(001	459844-0	02	459844-00	03		
	Field Id:	RP-1 @	8'	RP-2 @ 1	0'	RP-3 @ 1	5'		
Analysis Requested	Depth:								
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Mar-21-13	15:00	Mar-21-13 1	5:05	Mar-21-13 1	5:10		
BTEX by EPA 8021B	Extracted:	Mar-28-13	15.10						
	Analyzed:	Mar-28-13							
D	Units/RL:	mg/kg	RL 0.00108						
Benzene									
Toluene		ND	0.00216						
Ethylbenzene		ND ND	0.00108						
	m_p-Xylenes		0.00216						
o-Xylene		ND	0.00108						
Total Xylenes		ND	0.00108						
Total BTEX		ND	0.00108						
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-27-13	10:00	Mar-27-13 10:00		Mar-27-13 10:00			
	Analyzed:	Mar-27-13	18:59	Mar-27-13 19:42		Mar-27-13 20:04			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		663	20.0	775	20.0	4840	200		
Percent Moisture	Extracted:								
	Analyzed:	Mar-26-13 17:00		Mar-26-13 17:00		Mar-26-13 17:00			
	Units/RL:	%	RL	%	RL	%	RL		
Percent Moisture		7.07	1.00	3.48	1.00	7.94	1.00		
TPH By SW8015 Mod	Extracted:	Mar-27-13	08:00						
	Analyzed:	Mar-27-13 12:18							
	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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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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 (770) 449-5477

 (602) 437-0330
 (432) 563-1713

Final 1.001



Project Name: SUG 4"Lateral (2/18/13)

SURROGATE RECOVERY STUDYAmount [A]True Amount [B]Recovery $%R$ [D]Control Limits $%R$ Flags98.099.69870-135.51.949.810470-135.SMP (A]Batch:1Matrix:Soil.SMP (A]Batch:1Matrix:Soil.0SURROGATE RECOVERY STUDY1Amount (B]Recovery $%R$ (D)Control Limits $%R$ (D)0.02700.03009080-1200.02750.03009280-1200.02750.03009280-1200.02750.03009280-120C/BLK (A)Batch:1Matrix:SolidSURROGATE RECOVERY STUDYLimits $%R$ (D)Flags10499.810470-13510499.810470-13510499.810470-13510499.810470-13510499.810470-13510499.810470-135105.949.911270-13510499.810470-135105SURROGATE RECOVERY STUDY10499.8104105SURROGATE RECOVERY STUDY1060.02850.03009980-1200.02970.03009980-1200.02970.03009980-1200.02970.030099 <th>'ork Orders : 459844 Lab Batch #: 909973</th> <th>+, Sample: 459844-001 / SMP</th> <th>Batch</th> <th>Project I h: 1 Matrix</th> <th></th> <th></th> <th></th>	'ork Orders : 459844 Lab Batch #: 909973	+, Sample: 459844-001 / SMP	Batch	Project I h: 1 Matrix			
Amount [A] True Amount [B] Recovery %R [D] Control Limits %R [D] Flag %R 98.0 99.6 98 70-135 51.9 49.8 104 70-135 SMP Batch: 1 Matrix:Soil SMP Batch: 1 Matrix:Soil SMP Batch: 1 Matrix:Soil 0 SURROGATE Recovery %R [D] Control Limits %R Flag 0.0270 0.0300 90 80-120 0.0275 0.0300 92 80-120 Control [A] True Found [A] True [B] Recovery %R [D] Control Limits %R Flag Amount Found [A] True [B] Recovery %R [D] Control Limits %R Flag Matrix: Solid SURROGATE Recovery %R [D] Control Limits %R Flag Maunt [A] True [B] Recovery %R [D] Control Limits %R Flag Maunt [A] True [B] Recovery %R [D] Control Limits %R Flag Maunt [A] True [B] Recovery %R [D] Control Limits %R Flag Mount [A] True	Units: mg/kg	Date Analyzed: 03/27/13 12:18			-	STUDY	
98.0 99.6 98 70-135 51.9 49.8 104 70-135 SMP Batch: 1 Matrix:Soil SMP Batch: 1 Matrix:Soil Manual True [A] Amount [B] Recovery %R [D] Control Limits %R Flag 0.0270 0.0300 90 80-120 0 0 104 <th></th> <th>By SW8015 Mod</th> <th>Amount Found</th> <th>True Amount</th> <th>Recovery</th> <th>Control Limits</th> <th>Flag</th>		By SW8015 Mod	Amount Found	True Amount	Recovery	Control Limits	Flag
51.949.810470-135SMPBatch:1Matrix: SoilSURROGATE RECOVERY STUDYAmount [A]True Amount [B]Recovery %R [D]Control Limits %RFlag0.02700.03009080-1200.02750.03009280-1200.02750.03009280-1200.02750.03009280-1203SURROGATE RECOVERY STUDYAmount Found [A]True Amount [B]Recovery %R [D]Flag4Amount Found [A]True Amount [B]Recovery %R (D]Flag55.949.911270-13555.949.911270-13555.949.911270-135555.949.911270-13555.91Matrix: Solid5SURROGATE RECOVERY STUDY4Amount Found [B]Recovery %R (D]Control Limits %R (D]6SURROGATE RECOVERY STUDY60.02850.03009580-1200.02970.03009580-1200.02970.03009980-1205/ BKSBatch:1Matrix: Solid5SURROGATE RECOVERY STUDY6SURROGATE RECOVERY STUDY6SURROGATE RECOVERY STUDY7Amount [B]%R6SURROGATE RECOVERY STUDY		Analytes			[D]		
SMP Batch: 1 Matrix: Soil SURROGATE RECOVERY STUDY Image: Surrow of the second state of	1-Chlorooctane		98.0	99.6	98	70-135	
SURROGATE RECOVERY STUDY Amount True Recovery Control Limits Flag 0.0270 0.0300 90 80-120 0 0.0275 0.0300 92 80-120 0 6 SURROGATE Recovery 80-120 0 6 0.0275 0.0300 92 80-120 0 6 SURROGATE RECOVERY STUDY 80-120 0 0 6 SURROGATE RECOVERY STUDY 80-120 0 0 6 SURROGATE Recovery Control Limits Flag 6 Maount True Recovery Control Limits Flag 104 99.8 104 70-135 0 0 0 0 0 5 9 49.9 112 70-135 0	o-Terphenyl		51.9	49.8	104	70-135	
Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R Flags 0.0270 0.0300 90 80-120 0.0275 0.0300 92 80-120 %C Batch: 1 Matrix:Solid %C SURROGATE RECOVERY STUDY Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R Flags 104 99.8 104 70-135 1 104 99.8 104 70-135 1 %/BLK Batch: 1 Matrix:Solid 1 %/BLK Batch: 1 Matrix:Solid 1 %/B 104 70-135 1 1 %/BLK Batch: 1 Matrix:Solid 1 %/B SURROGATE RECOVERY STUDY 1 1 %/B Nount [B] Recovery %R [D] %R Flags %/BKS Batch: 1 Matrix:Solid 1 %/BKS Batch: 1 Matrix:Solid 1 %/BKS Batch: 1 Matrix:Solid 1 %/B SURROGATE RECOVERY STUDY 1 1 %/B Batch: 1 Matrix:Solid	Lab Batch #: 910129	Sample: 459844-001 / SMP	Batch	n: ¹ Matrix	:Soil		
Found [A]Amount [B]Recovery $%R$ [D]Limits $%R$ Flag0.02700.03009080-12000.02750.03009280-12003SURROGATE RECOVERY STUDYSolidS4Amount Found [A]True [B]Recovery $%R$ [D]Control Limits $%R$ Flag55.949.911270-135055.949.911270-135055.949.911270-13505SURROGATE RECOVERY STUDYSURROGATE RECOVERY STUDYSolid6SURROGATE RECOVERY STUDYImits $%R$ [D]Flag60.02850.03009580-1200.02970.03009980-12006SURROGATE RECOVERY STUDYSolidSolid6SURROGATE RECOVERY STUDYSolidSolid6Amount [B]Recovery $%R$ [D]Solid6Surrogate Recovery (A) Solid6Surrogate Recovery (A) Solid6Surrogate Recovery (A) Solid7Surrogate Recovery (A) Solid8Surrogate Recovery (B) Solid980-120Solid9Surrogate Recovery (B) Solid9Surrogate Recovery (B) Solid9Surrogate Recovery (B) Solid9Surrogate Recovery (B) Solid9Surrogate Recovery 	Units: mg/kg	Date Analyzed: 03/28/13 16:49	SU	RROGATE R	ECOVERY	STUDY	
Image: Constraint of the second state of t	BTE	X by EPA 8021B Analytes	Found	Amount	%R	Limits	Flag
0.02750.03009280-120KBatch:1Matrix: SolidSURROGATE RECOVERY STUDYAmount Found [A]True (B]Recovery %R [D]Control Limits %RFlag10499.810470-13510455.949.911270-1351044SURROGATE RECOVERY STUDY70-13510455.949.911270-1351044SURROGATE RECOVERY STUDY70-1351045SURROGATE RECOVERY STUDY11270-1351046SURROGATE RECOVERY STUDY11270-1351046SURROGATE RECOVERY STUDY11270-1351046SURROGATE RECOVERY STUDY11270-1351046SURROGATE RECOVERY STUDY11270-13510466SURROGATE RECOVERY STUDY1121046SURROGATE RECOVERY STUDY1003009980-1201046SURROGATE RECOVERY STUDY1003009980-1201046SURROGATE RECOVERY STUDY11111111111111171131111111111111111111711311111111111111111111711111111111111111111111171111111111111111111111117111111111111111111111111	1,4-Difluorobenzene	· • • • • • • • • • • • • • • • • • • •	0.0270	0.0300		80-120	
SURROGATE RECOVERY STUDY Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R Flag 104 99.8 104 70-135 - 55.9 49.9 112 70-135 - K/BLK Batch: 1 Matrix: Solid - SURROGATE RECOVERY STUDY Control Limits %R Flag Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R Flag 0.0285 0.0300 95 80-120 - 0.0297 0.0300 99 80-120 - S/BKS Batch: 1 Matrix: Solid - Manount [A] True [B] Recovery %R [D] Control Limits %R Flag	4-Bromofluorobenzene						
SURROGATE RECOVERY STUDY Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R Flag 104 99.8 104 70-135 104 55.9 49.9 112 70-135 104 K/BLK Batch: 1 Matrix: Solid 104 70-135 K/BLK Batch: 1 Matrix: Solid Control Limits %R Flag Amount [A] True Amount [A] Recovery %R [D] Control Limits %R Flag 0.0285 0.0300 95 80-120 104 0.0297 0.0300 99 80-120 104 S/BKS Batch: 1 Matrix: Solid 104 Manount [A] True [B] Recovery %R [D] Control Limits %R Flag	Lab Batch #: 909973	Sample: 635722-1-BLK / Bl	K Batel	n· 1 Matrix	r•Solid	1 1	
Amount Found [A]True Amount [B]Recovery %R [D]Control Limits %RFlag10499.810470-13510455.949.911270-135104C/BLKBatch:1Matrix: Solid104K/BLKBatch:1Matrix: Solid104K/BLKBatch:1Matrix: Solid104K/BLKBatch:1Matrix: Solid104K/BLKBatch:1Matrix: Solid104K/BLKBatch:1Matrix: Solid104K/BLKBatch:1Matrix: Solid104K/BLKBatch:1Matrix: Solid104KGoldon9580-1201000.02850.03009580-120100G/BKSBatch:1Matrix: Solid104KIMatrix: Solid100100G/BKSBatch:1Matrix: Solid104KIImatrix: Solid100100KIImatrix: Solid100100KIImatrix: Solid100100KIImatrix: Solid100100KIImatrix: Solid100100KIImatrix: Solid100100KIImatrix: Solid100100KIImatrix: Solid100100KIImatrix: Solid100100K<	Units: mg/kg	Date Analyzed: 03/27/13 09:43				STUDY	
Interview Interview <t< td=""><td>ТРН</td><td>By SW8015 Mod</td><td>Found</td><td>Amount</td><td>%R</td><td>Limits</td><td>Flag</td></t<>	ТРН	By SW8015 Mod	Found	Amount	%R	Limits	Flag
55.9 49.9 112 70-135 X/BLK Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY Amount True Recovery Control Found Imits %R Plag Matrix: Solid Solid Flag 0.0285 0.0300 95 80-120 0.0297 0.0300 99 80-120 S/BKS Batch: 1 Matrix: Solid S/BKS Batch: 1 Matrix: Solid Matrix: Solid Solid Solid S/BKS Batch: 1 Matrix: Solid Solid Solid Solid Solid Solid <th< td=""><td></td><td>Analytes</td><td></td><td></td><td>[D]</td><td></td><td></td></th<>		Analytes			[D]		
K/BLK Batch: 1 Matrix:Solid SURROGATE RECOVERY STUDY Amount True Recovery Control Limits %R [A] [B] %R Control Flag 0.0285 0.0300 95 80-120 6 0.0297 0.0300 99 80-120 6 6/BKS Batch: 1 Matrix:Solid 5 5/BKS Batch: 1 Matrix:Solid 5 6/BKS Batch: 1 Matrix:Solid 5 6/BKS Batch: 1 Matrix:Solid 5 6/BKS Batch: 1 Matrix:Solid 5 7 Control Limits Flag 6/BKS Batch: 1 Matrix:Solid 5 7 Control Limits Flag 8 Participan Participan Participan Participan 9 8 Participan Participan Participan Participan 9 1 Participan Participan	1-Chlorooctane		104	99.8	104	70-135	
Amount True Amount Recovery (B] Control Limits %R Flag 0.0285 0.0300 95 80-120 0.0297 0.0300 99 80-120 6/BKS Batch: 1 Matrix: Solid 5/ SURROGATE RECOVERY STUDY 5 Amount Flag 6/BKS Batch: 1 1 Matrix: Solid 5 SURROGATE RECOVERY STUDY 6 Amount True Amount 6 Flag 6 Image: Solid	o-Terphenyl		55.9	49.9	112	70-135	
Amount Found [A] True Amount [B] Recovery %R [D] Control Limits %R Flag 0.0285 0.0300 95 80-120 99 80-120 99 80-120 99 80-120 90	Lab Batch #: 910129	Sample: 635830-1-BLK / Bl					
Found [A]Amount [B]Recovery %R [D]Limits %RFlag0.02850.03009580-12000.02970.03009980-12006/BKSBatch:1 <matrix:solid< td="">55SURROGATE RECOVERY STUDY566Frue Found [A]True [B]Recovery %R [D]Control Limits %RFlag</matrix:solid<>	Units: mg/kg	Date Analyzed: 03/28/13 15:44	SU	RROGATE R	ECOVERYS	STUDY	
0.0285 0.0300 95 80-120 0.0297 0.0300 99 80-120 6/BKS Batch: 1 Matrix: Solid 5 SURROGATE RECOVERY STUDY Amount True Recovery Control [A] [B] %R [D] Flag	BTE	X by EPA 8021B	Found	Amount	%R	Limits	Flag
0.0297 0.0300 99 80-120 6 / BKS Batch: 1 Matrix: Solid 5 SURROGATE RECOVERY STUDY 6 Amount Found Amount [A] Recovery %R 6 Control Limits %R 6 Control Limits %R 6 Control Limits %R		Analytes			[D]		
S / BKS Batch: 1 Matrix: Solid SURROGATE RECOVERY STUDY Amount True Found Amount [A] [B] %R %R [D] %R	1,4-Difluorobenzene						
SURROGATE RECOVERY STUDY Amount True Found Amount [A] [B] %R [D]	4-Bromofluorobenzene		0.0297			80-120	
Amount True Control Found Amount Recovery Limits [A] [B] %R %R [D] Image: Control Second	Lab Batch #: 909973	Sample: 635722-1-BKS / BI					
Found Amount Recovery Limits Flag [A] [B] %R %R [D] [D] [D]	Units: mg/kg	Date Analyzed: 03/27/13 08:46	SU	RROGATE R	ECOVERY	STUDY	
	ТРН	By SW8015 Mod	Found	Amount	%R	Limits	Flag
96.2 99.8 96 70-135		Analytes					
	1-Chlorooctane		96.2	99.8	96	70-135	
56.6 49.9 113 70-135	o-Terphenyl						

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4"Lateral (2/18/13)

Lab Batch #: 910129	Sample: 635830-1-BKS / B	KS Batc	Project I h: ¹ Matrix	x: Solid		
Units: mg/kg	Date Analyzed: 03/28/13 14:38	SU	RROGATE R	ECOVERY S	STUDY	
BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1,4-Difluorobenzene		0.0285	0.0300	95	80-120	
4-Bromofluorobenzene		0.0322	0.0300	107	80-120	
Lab Batch #: 909973	Sample: 635722-1-BSD / B	SD Batc	h: ¹ Matrix	x: Solid		
Units: mg/kg	Date Analyzed: 03/27/13 09:16	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	Analytes	102	00.0		70.125	
o-Terphenyl		103	99.0 49.5	104	70-135	
					70-155	
Lab Batch #: 910129	Sample: 635830-1-BSD / B		-	x:Solid		
Units: mg/kg	Date Analyzed: 03/28/13 14:55	50	RROGATE R	ECOVERYS		
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	Anarytes	0.0323	0.0300	108	80-120	
4-Bromofluorobenzene		0.0323	0.0300	100	80-120	
Lab Batch #: 909973	Sample: 459844-001 S / MS			r• Soil		
Units: mg/kg	Date Analyzed: 03/27/13 12:43		RROGATE R		STUDY	
	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	Analytes	07.7	100		70.125	
o-Terphenyl		97.7	50.1	98	70-135 70-135	
					70-135	
Lab Batch #: 910129	Sample: 459879-003 S / MS					
Units: mg/kg	Date Analyzed: 03/28/13 19:01		RROGATE R			
BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		1	1	1		
1,4-Difluorobenzene	•	0.0298	0.0300	99	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4"Lateral (2/18/13)

Vork Orders : 459844 Lab Batch #: 909973	l, Sample: 459844-001 SD / N	ASD Batcl	Project II h: ¹ Matrix			
Units: mg/kg	Date Analyzed: 03/27/13 13:09	SU	RROGATE RI	ECOVERYS	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
1-Chlorooctane	Analytes	97.1	99.9	[D] 97	70-135	
o-Terphenyl		61.3	50.0	123	70-135	
Lab Batch #: 910129	Sample: 459879-003 SD / N	ASD Batc	h: 1 Matrix	:Soil	· · · · ·	
Units: mg/kg	Date Analyzed: 03/28/13 19:17	SU	RROGATE RI	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0323	0.0300	108	80-120	
4-Bromofluorobenzene		0.0330	0.0300	110	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution





Project Name: SUG 4''Lateral (2/18/13)

Work Order #: 459844							Proj	ject ID:			
Analyst: KEB	Da	ate Prepar	ed: 03/28/201	3			Date A	nalyzed: ()	3/28/2013		
Lab Batch ID: 910129 Sample: 635830-1-I	BKS	Batcl	n#: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	JCATE 1	RECOVE	ERY STUD	Y	
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	<0.000994	0.0994	0.0899	90	0.101	0.0950	94	6	70-130	35	
Toluene	<0.00199	0.0994	0.0840	85	0.101	0.0939	93	11	70-130	35	
Ethylbenzene	< 0.000994	0.0994	0.0804	81	0.101	0.0873	86	8	71-129	35	
m_p-Xylenes	<0.00199	0.199	0.163	82	0.201	0.176	88	8	70-135	35	
o-Xylene	<0.000994	0.0994	0.0877	88	0.101	0.0975	97	11	71-133	35	
Analyst: AMB	Da	ate Prepar	ed: 03/27/201	3			Date A	nalyzed: (3/27/2013		
Lab Batch ID: 910042 Sample: 635789-1-H	3KS	Batcl	n #: 1					Matrix: S	olid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	JCATE 1	RECOVE	ERY STUD	Y	
Inorganic Anions by EPA 300/300.1 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
Chloride	<2.00	50.0	52.4	105	50.0	52.8	106	1	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: SUG 4''Lateral (2/18/13)

Work Order #: 459844 Analyst: KEB		Da	te Preparo	ed: 03/27/201	3				ject ID: nalyzed: ()	3/27/2013		
Lab Batch ID: 909973	Sample: 635722-1-BKS	5	Batch	1#: 1					Matrix: S	olid		
Units: mg/kg			BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPL	JCATE 1	RECOVE	ERY STUD	Y	
TPH By SW8015	5 Mod	Blank Imple Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes			[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C12 Gasoline Range Hydrocarb	oons	<15.0	998	931	93	990	978	99	5	70-135	35	
C12-C28 Diesel Range Hydrocarbo	ons	<15.0	998	1000	100	990	1080	109	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: SUG 4"Lateral (2/18/13)

Work Order #: 459844							
Lab Batch #: 910042				Pr	oject ID:		
Date Analyzed: 03/28/2013	Date F	repared: 03/2	7/2013	Α	Analyst: A	MB	
QC- Sample ID: 459790-001 S		Batch #: 1		1	Matrix: S	oil	
Reporting Units: mg/kg		MATH	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300		Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes		[A]	[B]				
Chloride		<4.02	100	107	107	80-120	
Lab Batch #: 910042							
Date Analyzed: 03/27/2013	Date F	repared: 03/2	7/2013	A	analyst: A	MB	
QC- Sample ID: 459844-001 S		Batch #: 1]	Matrix: S	oil	
Reporting Units: mg/kg		MATH	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300		Parent Sample Result [A]	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes			[B]				
Chloride		663	500	1220	111	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference [E] = 200*(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: SUG 4"Lateral (2/18/13)



Work Order #: 459844						Project II	D:				
Lab Batch ID: 910129	QC- Sample ID:	459879	-003 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed: 03/28/2013	Date Prepared:	03/28/2	013	An	alyst:	KEB					
Reporting Units: mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY S	STUDY		
BTEX by EPA 8021B	Parent Sample	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
Benzene	<0.00110	0.110	0.0860	78	0.109	0.0852	78	1	70-130	35	
Toluene	<0.00220	0.110	0.0869	79	0.109	0.0821	75	6	70-130	35	
Ethylbenzene	<0.00110	0.110	0.0777	71	0.109	0.0719	66	8	71-129	35	Х
m_p-Xylenes	<0.00220	0.220	0.154	70	0.219	0.146	67	5	70-135	35	Х
o-Xylene	<0.00110	0.110	0.0868	79	0.109	0.0806	74	7	71-133	35	
Lab Batch ID: 909973	QC- Sample ID:	459844	-001 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed: 03/27/2013	Date Prepared:	03/27/2	013	An	alyst:	KEB					
Reporting Units: mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY S	STUDY		
TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]	[~]	[D]	[E]		[G]		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
C6-C12 Gasoline Range Hydrocarbons	<16.2	1080	1000	93	1080	1020	94	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.2	1080	1120	104	1080	1130	105	1	70-135	35	

Matrix Spike Percent Recovery $[D] = 100^{*}(C-A)/B$ Relative Percent Difference RPD = $200^{*}|(C-F)/(C+F)|$ Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E



Sample Duplicate Recovery



Project Name: SUG 4"Lateral (2/18/13)

Work Order #: 459844

Lab Batch #: 909946			•	Project I	D:	
Date Analyzed: 03/26/2013 17:00	Date Prepar	ed: 03/26/2013	Anal	yst:WRU		
QC- Sample ID: 459854-001 D	Batch	n#: 1	Mat	rix: Soil		
Reporting Units: %		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte			[B]			
Percent Moisture		9.72	9.04	7	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

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	Date	Date	UL 3/22/13								-	RP-3 @ 15'	RP-2 @ 10'	RP-1 @ 8'	FIELD CODE	2		Rolling -	432.520.7720	Midland, TX 79703	2057 Commerce	Nova Safety and Environmental	Becky Haskell		itories
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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Southern Union Gas Services- MonahanAcceptable Temperature Range: 0 - 6 degCDate/ Time Received: 03/22/2013 03:58:00 PMAir and Metal samples Acceptable Range: AmbientWork Order #: 459844Temperature Measuring device used :

Sample	Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ coole	er? 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	y? Yes	
#9 Any missing/extra samples?	No	
#10 Chain of Custody signed when relinquished/ rece	eived? 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 Cu	ustody? 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, H2	2SO4? Yes	
#22 >10 for all samples preserved with NaAsO2+NaC	DH, 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 459913

for

Southern Union Gas Services- Monahans

Project Manager: Becky Haskell SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

01-APR-13

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)



THE

01-APR-13

Project Manager: Becky Haskell Southern Union Gas Services- Monahans 801 South Loop 464 Monahans, TX 79756

Reference: XENCO Report No(s): 459913 SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904 Project Address: Lea County, NM

Becky Haskell:

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(s) 459913. 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. 459913 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

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Sample Cross Reference 459913



Southern Union Gas Services- Monahans, Monahans, TX

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Sample Id WW-1 @14' Matrix S Date Collected 03-20-13 14:00 Sample Depth

Lab Sample Id 459913-001



CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Project ID: Work Order Number(s): 459913 Report Date: 01-APR-13 Date Received: 03/25/2013

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-909979 BTEX by EPA 8021B SW8021BM

Batch 909979, Ethylbenzene, Toluene, m_p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Samples affected are: 459913-001.

The Laboratory Control Sample for Toluene, Ethylbenzene, m_p-Xylenes , o-Xylene is within laboratory Control Limits

Batch: LBA-910294 Inorganic Anions by EPA 300/300.1 E300

Batch 910294, Chloride recovered above QC limits in the Matrix Spike. Samples affected are: 459913-001. The Laboratory Control Sample for Chloride is within laboratory Control Limits



Contact: Becky Haskell

Project Id:

Certificate of Analysis Summary 459915 Southern Union Gas Services- Monahans, Monahans, TX



Ø

Date Received in Lab: Mon Mar-25-13 04:30 pm Report Date: 01-APR-13

				and an and an	
	Lab Id:	459913-001	1		
4 . T	Field Id:	WW-1@14"	4		
naisanhay sistinuy	Depth:				
	Matrix:	SOIL			
	Sampled:	Mar-20-13 14:00	003		
BTEX by EPA 8021B	Extracted:	Mar-27-13 12:15	2:15		
	Analyzed:	Mar-27-13 15:04	5:04		
	Units/RL:	mg/kg	RL		
Benzene			0.00103		
Toluene		QN	0.00206		
Ethylbenzene		QN	0.00103		
m_p-Xylenes		QN	0.00206		
o-Xylene		QN	0.00103		
Total Xylenes		QN	0.00103		
Total BTEX		Q	0.00103		
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-29-13 00:00	00:0	-	
	Analyzed:	Mar-29-13 17:07	1:07		
	Units/RL:	mg/kg	RL		
Chloride		193	10.0		
Percent Moisture	Extracted:				
	Analyzed:	Mar-27-13 17:00	00:-		
	Units/RL:	%	RL		
Percent Moisture		3.73	1.00		
TPH by Texas1005	Extracted:	Mar-27-13 08:00	00:		
	Analyzed:	Mar-27-13 15:43	:43		
	Units/RL:	mg/kg	RL		
C6-C12 Gasoline Range Hydrocarbons		Ð	25.9		
C12-C28 Diesel Range Hydrocarbons		Q	25.9		
C28-C35 Oil Range Hydrocarbons		QN	25.9		
Total TPH 1005		UN	25.0		

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

Nicholas Straccione Nul Ch

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Final 1.000



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
DI MARIADIA TIN		

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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 (770) 449-5477

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 (210) 509-3330

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Form 2 - Surrogate Recoveries

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

ork Orders : 459913 Lab Batch #: 909979	, Sample: 459913-001 / SMP	Bate	Project I h: 1 Matrix			
Units: mg/kg	Date Analyzed: 03/27/13 15:04		RROGATE R		STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0304	0.0300	101	80-120	1
4-Bromofluorobenzene		0.0296	0.0300	99	80-120	
Lab Batch #: 909973	Sample: 459913-001 / SMP	Bate				
Units: mg/kg	Date Analyzed: 03/27/13 15:43	SU	RROGATE R	ECOVERY	STUDY	
TPE	I by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
I-Chlorooctane		102	99.8	102	70-135	
o-Terphenyl		53.0	49.9	106	70-130	
Lab Batch #: 909973 Units: mg/kg	Sample: 635722-1-BLK / BL Date Analyzed: 03/27/13 09:43		h: ¹ Matrix RROGATE R		STUDY	_
TPE	I by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		104	99.8	104	70-135	
o-Terphenyl		55.9	49.9	112	70-130	
Lab Batch #: 909979	Sample: 635736-1-BLK / BL					
Units: mg/kg	Date Analyzed: 03/27/13 12:36	SU	RROGATE R	ECOVERY S	STUDY	
BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0275	0.0300	92	80-120	
4-Bromofluorobenzene		0.0259	0.0300	86	80-120	
Lab Batch #: 909973	Sample: 635722-1-BKS / BK	S Bate	h: 1 Matrix	:Solid		
Units: mg/kg	Date Analyzed: 03/27/13 08:46	SU	RROGATE R	ECOVERY S	STUDY	
TPE	I by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		96.2	99.8	96	70-135	
o-Terphenyl		56.6	49.9	113	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

	Sample: 635736-1-BKS/BR			Solid	OTTAL TONY	
Units: mg/kg Dat	e Analyzed: 03/27/13 12:04	SU	RROGATE R	ECOVERYS	STUDY	
BTEX by E Analy		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0314	0.0300	105	80-120	1
4-Bromofluorobenzene		0.0343	0.0300	114	80-120	7-
Lab Batch #: 909973	Sample: 635722-1-BSD / BS	D Bate	h: 1 Matrix	:Solid	17.5	
Units: mg/kg Dat	e Analyzed: 03/27/13 09:16	SU	RROGATE R	ECOVERY S	STUDY	
TPH by Te Analy		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		103	99.0	104	70-135	
o-Terphenyl		57.5	49.5	116	70-130	
Lab Batch #: 909979	Sample: 635736-1-BSD / BS	D Bate	h: 1 Matrix	:Solid		200-0-
	e Analyzed: 03/27/13 12:20		RROGATE R	ALL THE REAL PROPERTY.	STUDY	
BTEX by El		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		0.0284	0.0300	95	80-120	
Lab Batch #: 909973	Sample: 459844-001 S / MS	Batel	h: 1 Matrix	:Soil		100
Units: mg/kg Dat	e Analyzed: 03/27/13 12:43	SU	RROGATE R	ECOVERY S	STUDY	
TPH by Te Analy		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		97.7	100	98	70-135	1
o-Terphenyl		61.1	50.1	122	70-130	
Lab Batch #: 909979	Sample: 459790-001 S / MS	Batcl	h: 1 Matrix	: Soil		-
Units: mg/kg Dat	e Analyzed: 03/27/13 13:26	SU	RROGATE R	ECOVERY S	STUDY	
BTEX by El Analy		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0301	0.0300	100	80-120	1
4-Bromofluorobenzene		0.0333	0.0300	111	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

ork Orders : 459913,			Project I	D:		
Lab Batch #: 909973	Sample: 459844-001 SD / N	2A.				
Units: mg/kg	Date Analyzed: 03/27/13 13:09	SU	RROGATE R	ECOVERY	STUDY	
	by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		97.1	99.9	97	70-135	-
o-Terphenyl		61.3	50.0	123	70-130	
Lab Batch #: 909979	Sample: 459790-001 SD / M	ISD Bate	h: 1 Matri	x:Soil		
Units: mg/kg	Date Analyzed: 03/27/13 13:42	SU	RROGATE R	ECOVERY	STUDY	
	by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0255	0.0300	85	80-120	
4-Bromofluorobenzene		0.0271	0.0300	90	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



BS / BSD Recoveries



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

KS Blank Sample Result [A] <0.00100 <0.00100 <0.00100 <0.00100 <0.00100 Sample Result	ate	ate	ate	ate	ate ate	ate
	te Prepar Batch BLANI BLANI BLANI BlANI BLANI BLANI BLANI	te Prepared: 03/27/20 Batch #: 1 BLANK /BLANK Added Spike Added Spike Result [B] [C] 0.100 0.100 0.100 0.0963 0.100 0.0963 0.100 0.0937 0.100 0.0937 0.100 0.0937 0.100 0.0937 fc] Bank #: 1 Batch #: 1 BLANK /BLANK	te Prepared: 03/27/2013 Batch #: 1 BLANK /BLANK SPIKE / F BLANK /BLANK SPIKE / F Spike Blank Added Spike Spike Spike Blank Blank BJ Cl [D] [D] 0.100 0.100 100 100 0.100 0.100 100 100 0.100 0.100 100 100 0.100 0.100 100 100 0.100 0.101 100 100 0.100 0.100 96 96 0.200 0.181 91 91 0.100 0.09337 94 94 0.100 0.09337 94 94 0.100 0.09337 94 94 fe Prepared: 03/29/2013 94 94 Batch #: 1 1 1 Batch #: 1 1 1 Spike Blank Blank Spike Spike Spike Spike 0	te Prepared: 03/27/2013 Batch #: 1 Batch #: 1 BLANK /BLANK SPIKE / BLANK S BLANK /BLANK SPIKE / BLANK S Spike Blank Spike Added Spike Spike Added Result %R Bl [C] [D] [E] 0.100 0.100 100 0.100 0.100 0.100 100 0.100 0.100 0.101 100 0.100 0.100 0.181 91 0.100 0.100 0.0953 96 0.100 0.100 0.0937 94 0.100 0.100 0.0937 94 0.100 0.100 0.0937 94 0.100 0.100 0.3/29/2013 fet Prepared: 0.3/29/2013 Batch #: 1 Added Spike Spike Blank Spike Spike Added	te Prepared: 03/27/2013 Batch #: 1 Batch #: 1 BLANK / BLANK SPIKE / BLANK SPIKE DUPI Splke Blank Blank Blank Spike Blank Splke Spike Spike Spike Blank Spike Blank Splke Spike Spike Spike Blank Spike Blank Splke Spike Spike Spike Spike Blank Spike Splke Blank Spike Spike Spike Blank Spike Blank 0.100 0.100 100 100 0.100 0.0839 0.163 0.100 0.100 100 100 0.100 0.163 0.163 0.100 0.0937 94 0.100 0.163 0.163 0.163 0.163 0.100 0.0937 94 0.100 0.0380 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 0.163 <td>Proj let Frepared: 03/27/2013 Date Ai Batch #: 1 Datch #: 1 Date Ai BLANK / BLANK SPIKE / BLANK SPIKE DUPLICATE Date Ai Spike Blank Blank Blank Blank Spike Spike Spike Blank Blank Blank Spike Spike Spike Blank Blank Blank Blank Spike Spike Spike Spike Blank Blank Blank Blank Spike Duplicate %R Added Spike Spike Duplicate %R %R</td>	Proj let Frepared: 03/27/2013 Date Ai Batch #: 1 Datch #: 1 Date Ai BLANK / BLANK SPIKE / BLANK SPIKE DUPLICATE Date Ai Spike Blank Blank Blank Blank Spike Spike Spike Blank Blank Blank Spike Spike Spike Blank Blank Blank Blank Spike Spike Spike Spike Blank Blank Blank Blank Spike Duplicate %R Added Spike Spike Duplicate %R
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Flag

Control Limits %RPD

35 35 35 35 35

Flag

Limits %RPD Control

20

80-120

0

106

52.8

50.0 E

105

50.0 8

<2.00

Analytes Chloride

Ū 52.7

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

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Final 1.000



BS / BSD Recoveries



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Flag	
Control Límits %RPD	35
Control Limits %R	70-135
RPD %	5
Blk. Spk Dup. %R [G]	66
Blank Spike Duplicate Result [F]	978
Spike Added [E]	066
Blank Spike %R [D]	66
Blank Spike Result [C]	931
Spike Added [B]	866
Blank Sample Result [A]	<25.0
	arbons
TPH by Texa Analytes	C6-C12 Gasoline Range Hydrocarbons
	PH by Texas1005 Blank Spike Blank Blank Blank Blank Blank Blus Spike Blus Spike Sample Result Added Spike Spike Added Spike Added Spike Dup. RPD Limits [A] [A] [B] [C] [D] [E] Result [F] [G] % % %RPD

35

70-135

00

109

1080

066

100

1000

998

<25.0

C12-C28 Diesel Range Hydrocarbons

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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459913					
Lab Batch #: 910294		Pro	ject ID:	5 -	
Date Analyzed: 03/29/2013	Date Prepared: 03/29/2013	A	nalyst: A	MB	
QC- Sample ID: 459899-001 S	Batch #: 1	M	fatrix: S	oil	
Reporting Units: mg/kg	MATRIX / M	MATRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Spik Result Adde	6 State 1 Stat	%R [D]	Control Limits %R	Flag
Analytes	[A] [B]				A
Chloride	2240 2500	5770	141	80-120	x

:atrix Spike Percent Recovery [D] = 100*(C-A)/B
elative Percent Difference [E] = 200*(C-A)/(C+B)
Il Results are based on MDL and Validated for QC Purposes

RL - Below Reporting Limit

Form 3 - MS / MSD Recoveries



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Date Analyzed: 03/27/2013 Work Order #: 459913 Lab Batch ID: 909979

Batch #: Analyst: QC-Sample ID: 459790-001 S Date Prepared: 03/27/2013

Matrix: Soil H KEB

Project ID:

Reporting Units: mg/kg		N	IATRIX SPIK	E/MAT	RIX SPI	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	TE REC	OVERY	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	<0.000999	0.0999	0.0739	74	0.100	0.0727	73	2	70-130	35	
Toluene	<0.00200	6660.0	0.0579	58	0.100	0.0623	62	7	70-130	35	x
Ethylbenzene	<0.000999	0.0999	0.0456	46	0.100	0.0528	53	15	71-129	35	×
m_p-Xylenes	<0.00200	0.200	0.0804	40	0.201	0.0893	44	10	70-135	35	×
o-Xylene	<0.000999	0.0999	0.0446	45	0.100	0.0514	51	14	71-133	35	х
Lab Batch ID: 909973 Date Analyzed: 03/27/2013	QC- Sample ID: 459844-001 S Date Prepared: 03/27/2013	: 459844 : 03/27/2	-001 S 013	Ba	Batch #: Analyst:]	1 Matrix: Soil KEB	c: Soil				
Reporting Units: mg/kg		N	ATRIX SPIK	E/MAT	RIX SPD	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	TE REC	DVERY	STUDY		

wepper units outlos anglas		W	ATRIX SPIK	E/MAT	KUX SPI	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY	TE RECO	OVERY	STUDY			
TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spike Spiked Sample S ded [C] [B]	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	<26.9	1080	1000	93	1080	1020	94	2	70-135	35		
C12-C28 Diesel Range Hydrocarbons	<26.9	1080	1120	104	1080	1130	105	1	70-135	35		

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

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

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

Final 1.000

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Work Order #: 459913

Sample Duplicate Recovery



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Lab Batch #: 910039 Date Analyzed: 03/27/2013 17:00 QC- Sample ID: 459879-001 D Reporting Units: %	Date Prepar Batch	red: 03/27/2013 h #: 1 SAMPLE /	Ma	Project I alyst: WRU atrix: Soil DUPLIC		OVERY
Percent Moisture Analyte		Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture		8.09	7.64	6	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

Relinquished	Induished	Relinquished by:	Special Instructions:			-								LAB # (lab use only) R 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문 문	(lab use only)	S	 	0	0	0	The Environmental Lab of Texas Project Manager:
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mpe	Sample. Hand Delivered by Sampler/Client Rep. ? by Courier? UPS	Labels on container(s) Custody seals on container(s) Custody seals on cooler(s)	Laboratory Comments: Sample Containers Intact? VOCs Free of Headspace?	• 4 []	5	1	÷/*	-		1	1	-	1.3					#	я -	. "	e: ANL
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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Southern Union Gas Services- Monahan Date/ Time Received: 03/25/2013 04:30:00 PM Work Order #: 459913

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	
#2 *Shipping container in good condition	on?	Yes	
#3 *Samples received on ice?		Yes	
#4 *Custody Seals intact on shipping c	ontainer/ cooler?	Yes	
#5 Custody Seals intact on sample bot	tles?	Yes	
#6 *Custody Seals Signed and dated?		Yes	
#7 *Chain of Custody present?		Yes	
#8 Sample instructions complete on Ch	nain of Custody?	Yes	
#9 Any missing/extra samples?		No	
#10 Chain of Custody signed when reli	nquished/ received?	Yes	
#11 Chain of Custody agrees with sam	ple label(s)?	Yes	
#12 Container label(s) legible and intac	st?	Yes	
#13 Sample matrix/ properties agree w	ith Chain of Custody?	Yes	
#14 Samples in proper container/ bottle	97	Yes	
#15 Samples properly preserved?		Yes	
#16 Sample container(s) intact?		Yes	
#17 Sufficient sample amount for indica	ated test(s)?	Yes	
#18 All samples received within hold tin	ne?	Yes	
#19 Subcontract of sample(s)?		Yes	
#20 VOC samples have zero headspace	e (less than 1/4 inch bubble)?	Yes	
#21 <2 for all samples preserved with H		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 459989

for

Southern Union Gas Services- Monahans

Project Manager: Becky Haskell

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

03-APR-13

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-APR-13



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

Reference: XENCO Report No(s): **459989 SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904** Project Address: Lea County, NM

Becky Haskell:

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(s) 459989. 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. 459989 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

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Sample Cross Reference 459989



Southern Union Gas Services- Monahans, Monahans, TX

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
WW-1 @3'	S	03-22-13 13:30		459989-001
WW-1A @3'	S	03-22-13 14:30		459989-002
WW-1B @3'	S	03-22-13 15:00		459989-003
WW-1C @3'	S	03-25-13 11:00		459989-004
WW-1D @3'	S	03-25-13 16:30		459989-005



CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Project ID: Work Order Number(s): 459989 Report Date: 03-APR-13 Date Received: 03/26/2013

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-909979 BTEX by EPA 8021B SW8021BM

Batch 909979, Ethylbenzene, Toluene, m_p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Samples affected are: 459989-005, -003, -004, -001, -002.

The Laboratory Control Sample for Toluene, Ethylbenzene, m_p-Xylenes $% \mathcal{A}$, o-Xylene is within laboratory Control Limits



Project Id:

Contact: Becky Haskell Project Location: Lea County, NM

Certificate of Analysis Summary 459989

Southern Union Gas Services- Monahans, Monahans, TX

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Date Received in Lab: Tue Mar-26-13 04:45 pm

Report Date: 03-APR-13

roject Location: Lea County, NM												
								Project Ma	nager:	Nicholas Strac	ccione	
	Lab Id:	459989-0	001	459989-0	02	459989-0	003	459989-(004	459989-0	005	
Analusia Baay astad	Field Id:	WW-1 @	93'	WW-1A	@3'	WW-1B	@3'	WW-1C	@3'	WW-1D	@3'	
Analysis Requested	Depth:											
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	Sampled:	Mar-22-13	13:30	Mar-22-13 1	4:30	Mar-22-13	15:00	Mar-25-13	11:00	Mar-25-13	16:30	
BTEX by EPA 8021B	Extracted:	Mar-27-13	12:15	Mar-27-13	2:15	Mar-27-13	12:15	Mar-27-13	12:15	Mar-27-13	12:15	
	Analyzed:	Mar-27-13	15:37	Mar-27-13 1	5:53	Mar-27-13	16:43	Mar-27-13	16:59	Mar-27-13	17:15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Benzene		ND	0.00110	ND	0.00111	ND	0.00108	ND	0.00111	ND	0.00104	
Toluene		ND	0.00220	ND	0.00223	ND	0.00217	ND	0.00222	ND	0.00207	
Ethylbenzene		ND	0.00110	-	0.00111	ND	0.00108	ND	0.00111	ND	0.00104	
m_p-Xylenes		ND	0.00220		0.00223	ND	0.00217	ND	0.00222		0.00207	
o-Xylene		ND	0.00110	-	0.00111	ND	0.00108	ND	0.00111		0.00104	
Total Xylenes		ND	0.00110	-	0.00111	ND	0.00108	ND	0.00111		0.00104	
Total BTEX		ND	0.00110	ND	0.00111	ND	0.00108	ND	0.00111	ND	0.00104	
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-01-13	10:00	Apr-01-13 1	0:00	Apr-01-13	10:00	Apr-01-13	10:00	Apr-01-13	10:00	
	Analyzed:	Apr-01-13	22:11	Apr-01-13 2	2:55	Apr-01-13	23:16	Apr-01-13	23:38	Apr-02-13 (00:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		437	10.0	1320	20.0	856	20.0	679	20.0	73.6	10.0	
Percent Moisture	Extracted:											
	Analyzed:	Mar-27-13	17:00	Mar-27-13 1	7:00	Mar-27-13	17:00	Mar-27-13	17:00	Mar-27-13	17:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	
Percent Moisture		9.08	1.00	10.6	1.00	7.73	1.00	10.2	1.00	3.87	1.00	
TPH By SW8015 Mod	Extracted:	Mar-28-13	08:20	Mar-28-13 (08:20	Mar-28-13	08:20	Mar-28-13	08:20	Mar-28-13 (08:20	
	Analyzed:	Mar-28-13	15:55	Mar-28-13	6:20	Mar-28-13	16:45	Mar-28-13	17:12	Mar-28-13	17:37	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
C6-C12 Gasoline Range Hydrocarbons		ND	16.5	ND	16.8	ND	16.3	ND	16.6	ND	15.6	
C12-C28 Diesel Range Hydrocarbons		ND	16.5	ND	16.8	ND	16.3	ND	16.6	ND	15.6	
C28-C35 Oil Range Hydrocarbons		ND	16.5	ND	16.8	ND	16.3	ND	16.6	ND	15.6	
Total TPH		ND	16.5	ND	16.8	ND	16.3	ND	16.6	ND	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.

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Nicholas Straccione Project Manager

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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 SD	DL 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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(770) 449-8800	(770) 449-5477
(602) 437-0330	

Final 1.000



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

/ork Orders: 459989 Lab Batch #: 909979	, Sample: 459989-001 / SMP	Batch	Project I n: ¹ Matrix			
Units: mg/kg	Date Analyzed: 03/27/13 15:37		RROGATE R		STUDY	
	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1,4-Difluorobenzene		0.0280	0.0300	93	80-120	
4-Bromofluorobenzene		0.0305	0.0300	102	80-120	
Lab Batch #: 909979	Sample: 459989-002 / SMP	Batch	-			
Units: mg/kg	Date Analyzed: 03/27/13 15:53	SU	RROGATE R	ECOVERY	STUDY	
BTEX	X 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		0.0250	0.0300	83	80-120	
Lab Batch #: 909979	Sample: 459989-003 / SMP	Batch	n: 1 Matrix	:Soil	, ,	
Units: mg/kg	Date Analyzed: 03/27/13 16:43	SU	RROGATE R	ECOVERY	STUDY	
BTE	X 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		0.0267	0.0300	89	80-120	
Lab Batch #: 909979	Sample: 459989-004 / SMP	Batch	n: 1 Matrix	:Soil	1 1	
Units: mg/kg	Date Analyzed: 03/27/13 16:59	SUI	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0254	0.0300	85	80-120	
4-Bromofluorobenzene		0.0280	0.0300	93	80-120	
Lab Batch #: 909979	Sample: 459989-005 / SMP	Batch	n: 1 Matrix	:Soil	1 1	
Units: mg/kg	Date Analyzed: 03/27/13 17:15	SUI	RROGATE R	ECOVERYS	STUDY	
BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	· · · · · · · · · · · · · · · · · · ·	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene		0.0200	0.0500		00 120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Lab Batch #: 910131	Sample: 459989-001 / SMP	Batel	h: ¹ Matrix	:Soil		
Units: mg/kg	Date Analyzed: 03/28/13 15:55	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
	Analytes					
1-Chlorooctane o-Terphenyl		99.0 52.7	99.9 50.0	99	70-135	
1 0	a 150090.002/SMD				70-155	
Lab Batch #: 910131	Sample: 459989-002 / SMP	Batcl	h: 1 Matrix RROGATE R		STUDY	
Units: mg/kg	Date Analyzed: 03/28/13 16:20	30.	RROGATE R			
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		99.6	100	100	70-135	
o-Terphenyl		53.3	50.1	106	70-135	
Lab Batch #: 910131	Sample: 459989-003 / SMP	Batcl	h: ¹ Matrix	:Soil		
Units: mg/kg	Date Analyzed: 03/28/13 16:45	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
	Analytes	[1*]	[2]	[D]		
1-Chlorooctane		97.1	100	97	70-135	
o-Terphenyl		51.5	50.1	103	70-135	
Lab Batch #: 910131	Sample: 459989-004 / SMP	Batcl	h: 1 Matrix	:: Soil		
Units: mg/kg	Date Analyzed: 03/28/13 17:12	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane	Analytes	95.4	99.7	[D] 96	70-135	
1-Chlorooctane o-Terphenyl	Analytes				70-135 70-135	
	Analytes Sample: 459989-005 / SMP	95.4	99.7 49.9	96 101		
o-Terphenyl		95.4 50.6 Batcl	99.7 49.9	96 101 c: Soil	70-135	
o-Terphenyl Lab Batch #: 910131 Units: mg/kg	Sample: 459989-005 / SMP Date Analyzed: 03/28/13 17:37 By SW8015 Mod	95.4 50.6 Batcl	99.7 49.9 h: ¹ Matrix	96 101 c: Soil ECOVERY S Recovery %R	70-135	Flag
o-Terphenyl Lab Batch #: 910131 Units: mg/kg	Sample: 459989-005 / SMP Date Analyzed: 03/28/13 17:37	95.4 50.6 Batcl SU Amount Found	99.7 49.9 h: 1 Matrix RROGATE R True Amount	96 101 c: Soil ECOVERY S Recovery	70-135 STUDY Control Limits	Flag

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Lab Batch #: 909979	Sample: 635736-1-BLK / B		-			
Units: mg/kg	Date Analyzed: 03/27/13 12:36	SU	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
4.4.5-20	Analytes					
1,4-Difluorobenzene 4-Bromofluorobenzene		0.0275	0.0300	92	80-120 80-120	
					80-120	
Lab Batch #: 910131	Sample: 635832-1-BLK / B					
Units: mg/kg	Date Analyzed: 03/28/13 09:50	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		98.3	99.9	98	70-135	
o-Terphenyl		52.2	50.0	104	70-135	
Lab Batch #: 909979	Sample: 635736-1-BKS / B	KS Batc	h: ¹ Matrix	:Solid		
Units: mg/kg	Date Analyzed: 03/27/13 12:04		RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1 4 Different surgers	Analytes	0.0014	0.0200		00.100	
1,4-Difluorobenzene 4-Bromofluorobenzene		0.0314	0.0300	105	80-120	
		0.0343		114	80-120	
Lab Batch #: 910131	Sample: 635832-1-BKS / B					
Units: mg/kg	Date Analyzed: 03/28/13 08:59	50	RROGATE R	ECOVERYS	STUDY	
TPH]	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		102	99.9	102	70-135	
o-Terphenyl		58.3	50.0	117	70-135	
Lab Batch #: 909979	Sample: 635736-1-BSD / B	SD Bate	h: 1 Matrix	:Solid		
Units: mg/kg	Date Analyzed: 03/27/13 12:20	SU	RROGATE R	ECOVERY S	STUDY	
BTEZ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobenzene	v	0.0298	0.0300	99	80-120	
1,4-Diffuorobelizene		0.0270				

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

ATERECOVEFrue nount [B]Recove %R [D]10010150.1116Matrix: SoilFrue nount [B]Recove %R [D]03001000300111Matrix: Soil	ery Control Limits %R 70-135 70-135 RY STUDY ery Control Limits %R 80-120	Flags
nount [B] Recover % R [D] 100 101 50.1 116 Matrix: Soil XATE KATE RECOVE Frue nount [B] Recover % R [D] 0300 100 0300 111 Matrix: Soil 111	ery Limits %R 70-135 70-135 70-135 RY STUDY ery Control Limits %R 80-120	
Image: Non-Structure Natrix: Soil SATE RECOVE True Recove Image: Non-Structure % R Image: Non-S	70-135 70-135 RY STUDY ery Control Limits %R 80-120	Flag
50.1 116 Matrix: Soil Image: Soil state	70-135 RY STUDY ery Control Limits %R 80-120	Flag
Matrix: Soil ATE RECOVE Frue nount [B] 0300 0300 100 0300 111 Matrix: Soil	RY STUDY ery Control Limits %R 80-120	Flag
ATE RECOVE	ery Control Limits %R 80-120	Flage
Frue nount [B] Recover % R [D] 0300 100 0300 111 Matrix: Soil	ery Control Limits %R 80-120	Flage
nount [B] Recove %R [D] 0300 100 0300 111 Matrix: Soil	ery Limits %R 80-120	Flag
0300 100 0300 111 Matrix: Soil	80-120	
0300 111 Matrix: Soil		
	1	
ATE RECOVE	RY STUDY	
True	Control	
nount Recover [B] %R [D]	K %R	Flag
100 95	70-135	
50.1 108	70-135	
Matrix: Soil	· ·	
ATE RECOVE	RY STUDY	
True nount Recove [B] %R [D]	K %R	Flag
0300 85 0300 90	80-120	
	80-120	
Matrix: Soil		
ATE RECOVE	RYSIUDY	
True	K ∥ %R	Flag
nount Recover		
nount Recove [B] %R [D]	70-135	
J	[B] %R [D]	mount Recovery Limits

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution





Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459989								ect ID:			
Analyst: KEB	Da	ate Prepar	ed: 03/27/201	3			Date Ar	nalyzed: 0	3/27/2013		
Lab Batch ID: 909979 Sample: 635736-1-B	KS	Batch	n#: 1					Matrix: S	olid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	LICATE I	RECOVE	CRY STUD	Y	
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	< 0.00100	0.100	0.100	100	0.100	0.0946	95	6	70-130	35	
Toluene	< 0.00200	0.100	0.100	100	0.100	0.0889	89	12	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.0963	96	0.100	0.0870	87	10	71-129	35	
m_p-Xylenes	< 0.00200	0.200	0.181	91	0.201	0.163	81	10	70-135	35	
o-Xylene	< 0.00100	0.100	0.0937	94	0.100	0.0880	88	6	71-133	35	
Analyst: AMB	Da	ate Prepar	ed: 04/01/201	3			Date A	nalyzed: 0	4/01/2013		
Lab Batch ID: 910455 Sample: 636033-1-B	KS	Batcl	n#: 1					Matrix: S	olid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	LICATE I	RECOVE	ERY STUD	Y	
Inorganic Anions by EPA 300/300.1 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
Chloride	<2.00	50.0	49.0	98	50.0	49.1	98	0	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459989 Analyst: KEB		Da	ate Prepar	red: 03/28/201	3				ject ID: nalyzed: ()	3/28/2013		
Lab Batch ID: 910131	Sample: 635832-1-B	KS	Batc	h #: 1					Matrix: S	olid		
Units: mg/kg			BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPL	ICATE	RECOVE	ERY STUD	Ŷ	
TPH By SW80	15 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes			[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C12 Gasoline Range Hydroc	arbons	<15.0	999	949	95	1000	988	99	4	70-135	35	
C12-C28 Diesel Range Hydrocar	rbons	<15.0	999	1030	103	1000	1080	108	5	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459989										
Lab Batch #: 910455				Pro	oject ID	:				
Date Analyzed: 04/01/2013	Date F	Prepared: 04/0	1/2013	A	MB					
QC- Sample ID: 459989-001 S		Batch #: 1		I	Matrix: S	k: Soil				
Reporting Units: mg/kg		MATH	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY			
Inorganic Anions by EPA 300		Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag			
Analytes		[A]	[B]							
Chloride		437	250	689	101	80-120				
Lab Batch #: 910455										
Date Analyzed: 04/02/2013	Date F	Prepared: 04/0	1/2013	A	nalyst: A	MB				
QC- Sample ID: 460076-006 S		Batch #: 1		I	Matrix: S	oil				
Reporting Units: mg/kg		MATH	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY			
Inorganic Anions by EPA 300		Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag			
Analytes		[A]	[B]							
Chloride		736	1010	1730	98	80-120				

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference [E] = 200*(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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459989						Project II	D:				
Lab Batch ID: 909979	QC- Sample ID:				tch #:	1 Matrix	x: Soil				
Date Analyzed: 03/27/2013	Date Prepared:	03/27/2	013	An	alyst:	KEB					
Reporting Units: mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]	[0]	[D]	[E]	itesuit [1]	[G]	/0	, or		
Benzene	<0.000999	0.0999	0.0739	74	0.100	0.0727	73	2	70-130	35	
Toluene	< 0.00200	0.0999	0.0579	58	0.100	0.0623	62	7	70-130	35	Х
Ethylbenzene	<0.000999	0.0999	0.0456	46	0.100	0.0528	53	15	71-129	35	Х
m_p-Xylenes	< 0.00200	0.200	0.0804	40	0.201	0.0893	44	10	70-135	35	Х
o-Xylene	<0.000999	0.0999	0.0446	45	0.100	0.0514	51	14	71-133	35	Х
Lab Batch ID: 910131	QC- Sample ID:	459989	-001 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed: 03/28/2013	Date Prepared:	03/28/2	013	An	alyst:	KEB					
Reporting Units: mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]	[0]	[D]	[E]		[G]	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
C6-C12 Gasoline Range Hydrocarbons	<16.5	1100	1010	92	1100	1070	97	6	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.5	1100	1130	103	1100	1180	107	4	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference RPD = 200*|(C-F)/(C+F)| Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E



Sample Duplicate Recovery



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 459989

Lab Batch #: 910039				Project I	D:	
Date Analyzed: 03/27/2013 17:00	Date Prepar	ed: 03/27/2013	Anal	lyst:WRU		
QC- Sample ID: 459879-001 D	Batcl	n#: 1	Mat	rix: Soil		
Reporting Units: %		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte			[B]			
Percent Moisture		8.09	7.64	6	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

Relinquished by: Relinquished by: Relinquished by:	Special Instructions:											ORDER #:	(lab use only)	Sam	Tele	City	Con	Con	Proj	ronm	S S
hell							· .					Ч С		Sampler Signature:	Telephone No:	City/State/Zip:	Company Address:	Company Name	Project Manager:	The Environmental Lab of Texas	o Lap
					WW-1U @ 3	WWV-IC@3	WW-18 @ 3		نې ۱۸۸۸-۱۵ ش	WW-1 @ 3'	FIELD CODE	22	202	nture: <u>Inllh</u>	432.520.7720	Midland, TX 79703	ress: 2057 Commerce		er: Becky Haskell	f Texas	Xenco Laboratories
3/24/13 Date 3/24/3 Date												·		Wa . A	720	X 79703	Imerce	Nova Safety and Environmental	skell		es
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			·								TPH: TX 1005 TX 1006				mat	B	ct L	Project #:	Nar		R
VOCs Free of Headspac Labels on container(s) Custody seals on cooler Custody seals on cooler Sample Hand Delivered by Sampler/Client Rej by Courier? UPS by Courier? UPS	Laboratory Comments: Sample Containers Intac		Ľ.								Cations (Ca, Mg, Na, K)				0	РО #		_#	ne:		A
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VOCs Free of Headspace? Labels on container(s) Custody seals on cooler(s) Custody seals on cooler(s) Sample Hand Delivered by Sampler/Client Rep. ? by Courier? UPS DH by Courier? DHS DH	Laboratory Comments: Sample Containers Intact?			$\left \right $		< >	< >	╀	\mathbf{x}^{\dagger}	×	Semivolatiles BTEX 8021B/5030 or BTEX 826		+	Analyze For:	· []	·	Lea		teral	32-	CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST
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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Southern Union Gas Services- MonahanAcceptable Temperature Range: 0 - 6 degCDate/ Time Received: 03/26/2013 04:45:00 PMAir and Metal samples Acceptable Range: AmbientWork Order #: 459989Temperature Measuring device used :

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	0	
#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 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 460525

for

Southern Union Gas Services- Monahans

Project Manager: Becky Haskell

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

11-APR-13

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)



11-APR-13



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

Reference: XENCO Report No(s): 460525 SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904 Project Address: Lea County, NM

Becky Haskell:

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(s) 460525. 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. 460525 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

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Sample Cross Reference 460525



Southern Union Gas Services- Monahans, Monahans, TX

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-1 @ 3'	S	04-02-13 09:00		460525-001
SW-1 @ 15'	S	04-02-13 10:00		460525-002
SW-1A @ 3'	S	04-02-13 11:00		460525-003
SW-1A @ 15'	S	04-02-13 14:20		460525-004
SW-1B @ 3'	S	04-02-13 15:15		460525-005
SW-1B @ 15'	S	04-02-13 16:40		460525-006



CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Project ID: Work Order Number(s): 460525 Report Date: *11-APR-13* Date Received: *04/03/2013*

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None



Project Id:

Contact: Becky Haskell Project Location: Lea County, NM

Certificate of Analysis Summary 460525

Southern Union Gas Services- Monahans, Monahans, TX

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Date Received in Lab: Wed Apr-03-13 04:55 pm

Report Date: 11-APR-13

roject Location: Lea County, NM													
								Project Ma	nager:	Nicholas Strad	ccione		
	Lab Id:	460525-0	001	460525-0	02	460525-0	03	460525-0	004	460525-0	005	460525-0	006
An aluaia De au este d	Field Id:	SW-1 @	3'	SW-1 @	15'	SW-1A @	3'	SW-1A @	15'	SW-1B @	0 3'	SW-1B @	15'
Analysis Requested	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-02-13	09:00	Apr-02-13 1	0:00	Apr-02-13 1	1:00	Apr-02-13	14:20	Apr-02-13	15:15	Apr-02-13	16:40
BTEX by EPA 8021B	Extracted:	Apr-08-13	09:20	Apr-08-13 (9:20								
	Analyzed:	Apr-08-13	14:28	Apr-08-13 1	4:44								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		ND	0.00106	ND	0.00106								
Toluene		ND	0.00213	ND	0.00212								
Ethylbenzene		ND	0.00106	ND	0.00106								
m_p-Xylenes		ND	0.00213		0.00212								
o-Xylene		ND	0.00106	ND	0.00106								
Total Xylenes		ND	0.00106		0.00106								
Total BTEX		ND	0.00106	ND	0.00106								
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-05-13	10:05	Apr-05-13 1	0:05	Apr-05-13 1	0:05	Apr-05-13	10:05	Apr-08-13	10:00	Apr-05-13	10:05
	Analyzed:	Apr-06-13	12:06	Apr-06-13 1	2:49	Apr-06-13 1	3:11	Apr-06-13	13:33	Apr-08-13	17:17	Apr-06-13	13:54
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		441	10.0	340	10.0	154	4.00	393	10.0	236	10.0	119	4.00
Percent Moisture	Extracted:												
	Analyzed:	Apr-04-13	17:00	Apr-04-13 1	7:00	Apr-04-13 1	7:00	Apr-04-13	17:00	Apr-04-13	17:00	Apr-04-13	17:00
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		5.60	1.00	6.59	1.00	5.05	1.00	5.47	1.00	4.02	1.00	4.53	1.00
TPH By SW8015 Mod	Extracted:	Apr-04-13	11:40	Apr-04-13 1	1:40								
	Analyzed:	Apr-05-13	08:36	Apr-04-13 1	9:14								
	Units/RL:	mg/kg	RL	mg/kg	RL								
C6-C12 Gasoline Range Hydrocarbons		ND	15.9	ND	16.1								
C12-C28 Diesel Range Hydrocarbons		ND	15.9	ND	16.1								
C28-C35 Oil Range Hydrocarbons		ND	15.9	ND	16.1								
Total TPH		ND	15.9	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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Nicholas Straccione Project Manager

Page 5 of 16



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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 (214) 351-9139

 (210) 509-3334
 (210) 509-3335

 (813) 620-2000
 (813) 620-2033

 (432) 563-1800
 (432) 563-1713

 (770) 449-8800
 (770) 449-5477

 (602) 437-0330
 (432) 563-1713

Final 1.001



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

ork Orders : 460525 Lab Batch #: 910671	Sample: 460525-002 / SMP	Batcl	Project I n: 1 Matrix			
Units: mg/kg	Date Analyzed: 04/04/13 19:14		RROGATE R		STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		96.5	100	97	70-135	
o-Terphenyl		50.1	50.0	100	70-135	
Lab Batch #: 910671	Sample: 460525-001 / SMP	Batel	n: ¹ Matrix	:Soil		
Units: mg/kg	Date Analyzed: 04/05/13 08:36	SU	RROGATE R	ECOVERY S	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		51.1	50.0	102	70-135	
Lab Batch #: 910870	Sample: 460525-001 / SMP	Batcl	n: ¹ Matrix	:Soil	1 1	
Units: mg/kg	Date Analyzed: 04/08/13 14:28	SU	RROGATE R	ECOVERY S	STUDY	
BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1,4-Difluorobenzene		0.0281	0.0300	94	80-120	
4-Bromofluorobenzene		0.0270	0.0300	90	80-120	
Lab Batch #: 910870	Sample: 460525-002 / SMP	Batcl	n: 1 Matrix	:Soil	1 1	
Units: mg/kg	Date Analyzed: 04/08/13 14:44	SU	RROGATE R	ECOVERY S	STUDY	
BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
14 Differenchampene	Analytes	0.0214	0.0200		00.120	
1,4-Difluorobenzene 4-Bromofluorobenzene		0.0314	0.0300	105	80-120	
		0.0304	0.0300	101	80-120	
Lab Batch #: 910671	Sample: 636178-1-BLK / BI					
Units: mg/kg	Date Analyzed: 04/04/13 15:20	SU.	RROGATE R	ECOVERY S		
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooctane		96.0	100	96	70-135	
				1		

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Lab Batch #: 910870	Sample: 636306-1-BLK / Bl					
Units: mg/kg	Date Analyzed: 04/08/13 11:11	SU	RROGATE R	ECOVERY S	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1,4-Difluorobenzene		0.0258	0.0300	86	80-120	
4-Bromofluorobenzene		0.0324	0.0300	108	80-120	
Lab Batch #: 910671	Sample: 636178-1-BKS / BI		-			
Units: mg/kg	Date Analyzed: 04/04/13 14:20	SU	RROGATE R	ECOVERY S	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane	Analytes	90.4	99.7	91	70-135	
o-Terphenyl		55.2	49.9	111	70-135	
	G 1 626206 1 DKS / DI					
Lab Batch #: 910870	Sample: 636306-1-BKS / BI		h: ¹ Matrix		STUDY	
Units: mg/kg	Date Analyzed: 04/08/13 10:22					
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1.4-Difluorobenzene		0.0324	0.0300	108	80-120	
4-Bromofluorobenzene		0.0312	0.0300	100	80-120	
Lab Batch #: 910671	Sample: 636178-1-BSD / BS	SD Bate	h: 1 Matrix	r• Solid		
Units: mg/kg	Date Analyzed: 04/04/13 14:52		RROGATE R		STUDY	
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		89.9	100	90	70-135	
o-Terphenyl		55.6	50.0	111	70-135	
Lab Batch #: 910870	Sample: 636306-1-BSD / BS	SD Bate	h: 1 Matrix	s:Solid	<u> </u>	
Units: mg/kg	Date Analyzed: 04/08/13 10:55		RROGATE R		STUDY	
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobenzene	•	0.0305	0.0300	102	80-120	
			1			

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

ork Orders: 460525			Project I			
Lab Batch #: 910671	Sample: 460525-001 S / MS			-		
Units: mg/kg	Date Analyzed: 04/05/13 01:43	SU.	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	-	87.5	99.7	88	70-135	
o-Terphenyl		53.2	49.9	107	70-135	
Lab Batch #: 910870	Sample: 460525-001 S / MS	B Batcl	h: ¹ Matrix	:Soil	· · · ·	
Units: mg/kg	Date Analyzed: 04/08/13 16:06	SU	RROGATE R	ECOVERYS	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1.4-Difluorobenzene	Analytes	0.0220	0.0200		00.120	
4-Bromofluorobenzene		0.0320	0.0300	107	80-120 80-120	
	G 1 4(0525 001 8D /)				00 120	
Lab Batch #: 910671	Sample: 460525-001 SD / N		h: ¹ Matrix RROGATE R		STUDY	
Units: mg/kg	Date Analyzed: 04/05/13 02:14	50.	KNOGATE K			
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane	Analytes	00.4	100		70.125	
o-Terphenyl		88.4 55.1	100 50.0	88	70-135	
1 4				-	70-135	
Lab Batch #: 910870	Sample: 460525-001 SD / M		h: 1 Matrix	-		
Units: mg/kg	Date Analyzed: 04/08/13 16:23	50.	KRUGAIE K	ECOVERY		
BTEX	X by EPA 8021B	Amount Found	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytas	[A]	[10]			
1.4-Difluorobenzene	Analytes	[A] 0.0322	0.0300	[D]	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution





Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460525, 460525							Proj	ect ID:			
Analyst: KEB	Da	ate Prepar	ed: 04/08/201	.3			Date A	nalyzed: 0	4/08/2013		
Lab Batch ID: 910870 Sample: 636306-1-B	KS	Batch	n#: 1					Matrix: S	olid		
Units: mg/kg		BLAN	K/BLANK S	SPIKE / E	BLANK S	PIKE DUPI	JCATE I	RECOVE	CRY STUD	Y	
	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		լոյ	[C]		[E]	Kesutt [F]	[0]				
Benzene	<0.00100	0.100	0.0923	92	0.0992	0.0953	96	3	70-130	35	
Toluene	< 0.00200	0.100	0.0946	95	0.0992	0.0962	97	2	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.0820	82	0.0992	0.0844	85	3	71-129	35	
m_p-Xylenes	< 0.00200	0.200	0.170	85	0.198	0.174	88	2	70-135	35	
o-Xylene	< 0.00100	0.100	0.0938	94	0.0992	0.0951	96	1	71-133	35	
Analyst: AMB	Da	ate Prepar	ed: 04/05/201	3			Date A	nalyzed: 0	4/06/2013		
Lab Batch ID: 911028 Sample: 636376-1-B	KS	Batch	n#: 1					Matrix: S	olid		
Units: ^{mg/kg}		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	JCATE 1	RECOVE	RY STUD	Y	
Inorganic Anions by EPA 300/300.1 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
Chloride	<2.00	50.0	47.7	95	50.0	48.8	98	2	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





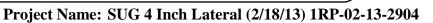
Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460525, 460525							Pro	ject ID:					
Analyst: AMB	Da	ate Prepar	ed: 04/08/201	.3	Date Analyzed: 04/08/2013								
Lab Batch ID: 911048 Sample: 636424-1	-BKS	Bate	h #: 1				Matrix: Solid						
Units: mg/kg		BLAN	K /BLANK S	SPIKE / I	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUD	Y			
Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag		
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]						
Chloride	<2.00	50.0	49.3	99	50.0	49.2	98	0	80-120	20			
Analyst: KEB	Da	ate Prepai	red: 04/04/201	.3			Date A	nalyzed: (04/04/2013				
Lab Batch ID: 910671 Sample: 636178-1	-BKS	Bate	h #: 1					Matrix: S	Solid				
Units: mg/kg		BLAN	K /BLANK S	SPIKE / I	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUD	Y			
TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag		
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]						
C6-C12 Gasoline Range Hydrocarbons	<15.0	997	906	91	1000	893	89	1	70-135	35			
C12-C28 Diesel Range Hydrocarbons	<15.0 997 999 100 1000 974 97 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



Work Order #: 460525							
Lab Batch #: 911028				Pr	oject ID:		
Date Analyzed: 04/06/2013	Date P	repared: 04/0	5/2013	A	analyst: A	MB	
QC- Sample ID: 460525-001 S		Batch #: 1		I	Matrix: So	oil	
Reporting Units: mg/kg		MATE	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride		441	250	682	96	80-120	
Lab Batch #: 911048		1				1	1
Date Analyzed: 04/08/2013	Date P	repared: 04/0	8/2013	A	analyst: A	MB	
QC- Sample ID: 460525-005 S		Batch #: 1		1	Matrix: So	oil	
Reporting Units: mg/kg		MATE	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes				10.1		00.100	
Chloride		236	250	484	99	80-120	
Lab Batch #: 911048							
Date Analyzed: 04/08/2013	Date P	repared: 04/0	8/2013	Α	analyst: A	MB	
QC- Sample ID: 460712-010 S		Batch #: 1			Matrix: So		
Reporting Units: mg/kg		MATE	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300		Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes		[A]	[B]	101			

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference [E] = 200*(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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order # : 460525						Project II	D:				
Lab Batch ID: 910870 Date Analyzed: 04/08/2013	QC- Sample ID: Date Prepared:				tch #: alyst:	1 Matri KEB	x: Soil				
Reporting Units: mg/kg		\mathbf{M}	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]		[D]	[E]		[G]				
Benzene	<0.00106	0.106	0.0958	90	0.106	0.0863	81	10	70-130	35	
Toluene	< 0.00212	0.106	0.0984	93	0.106	0.0827	78	17	70-130	35	
Ethylbenzene	< 0.00106	0.106	0.0884	83	0.106	0.0749	71	17	71-129	35	
m_p-Xylenes	<0.00212	0.212	0.184	87	0.211	0.153	73	18	70-135	35	
o-Xylene	< 0.00106	0.106	0.0971	92	0.106	0.0787	74	21	71-133	35	
Lab Batch ID: 910671	QC- Sample ID:				tch #:	1 Matrix	x: Soil				
Date Analyzed: 04/05/2013	Date Prepared:	04/04/2	013	An	alyst:	KEB					
Reporting Units: mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]		[D]	[E]		[G]				
C6-C12 Gasoline Range Hydrocarbons	<15.8	1060	935	88	1060	955	90	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.8	1060	1020	96	1060	1030	97	1	70-135	35	

Matrix Spike Percent Recovery $[D] = 100^{\circ}(C-A)/B$ Relative Percent Difference RPD = $200^{\circ}|(C-F)/(C+F)|$ Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E



Sample Duplicate Recovery



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460525

Lab Batch #: 910654				Project I	D:	
Date Analyzed: 04/04/2013 17:00	Date Prepar	ed: 04/04/2013	Anal	lyst:WRU		
QC- Sample ID: 460525-001 D	Batch	n#: 1	Mat	rix: Soil		
Reporting Units: %		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte			[B]			
Percent Moisture		5.60	5.95	6	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

Relinquished by:	Relinquist	Relinquished by	Special I				¢	90	50	Ч	03	60	0	LAB # (lab use only)	ORDER	(lab use)							The Env	Xenco
ned by:	quished by: MULA	ned by: How	Special Instructions:												ORDER # 400525	only) / [,	Sampler Sign	Telephone No:	City/State/Zip:	Company Address:	Company Name	Project Manager:	-	
		ell						SW-1B @ 15'	SW-1B @ 3'	SW-1A @ 15'	SW-1A @ 3'	SW-1 @ 15'	SW-1 @ 3'	FIELD CODE) d 5) À	Sampler Signature: <u>XUL/CLLA</u>	$\frac{432.520.7720}{N}$: Midland, TX 79703	dress: 2057 Commerce		ger: Becky Haskell	of Texas	Laboratories
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_								 	<u> </u>				-	TPH: TX 1005 TX 1006				mat:	PO #	Project Loc:	Project #:	Project Name:		RD
Temperature Upon Receipt:	by Sampler/Client Rep by Counter? UPS	Labels on container(s) Custody seals on container(s) Custody seals on cooler(s)	Laboratory Comments: Sample Containers Intact? VOCs Free of Headspace?	-	1						<u> </u>			Cations (Ca, Mg, Na, K) Anions (Cl, SO4, Alkalinity)				5	*** 	 	** 			ANL
eratu	hple Hand Delivered by Sampler/Client Rep. ? by Courier? UPS	s on dy se dy se	Free	-						-	-		<u> </u>	SAR / ESP / CEC	TOTAL:	TCLP:		⊠ Sta				SUC) AN
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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Southern Union Gas Services- MonahanAcceptable Temperature Range: 0 - 6 degCDate/ Time Received: 04/03/2013 04:55:00 PMAir and Metal samples Acceptable Range: AmbientWork Order #: 460525Temperature Measuring device used :

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	1	
#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 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 460712

for

Southern Union Gas Services- Monahans

Project Manager: Becky Haskell

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

11-APR-13

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)



11-APR-13



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

Reference: XENCO Report No(s): 460712 SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904 Project Address: Lea County, NM

Becky Haskell:

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(s) 460712. 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. 460712 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

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Sample Cross Reference 460712



Southern Union Gas Services- Monahans, Monahans, TX

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NWW-1 @ 3'	S	04-03-13 09:30		460712-001
NWW-1 @ 15'	S	04-03-13 10:00		460712-002
NWW-1A @ 15'	S	04-03-13 11:45		460712-003
NWW-1B @ 3'	S	04-03-13 13:30		460712-004
NWW-1C @ 3'	S	04-03-13 14:30		460712-005
EW-1 @ 3'	S	04-03-13 15:00		460712-006
EW-1 @ 15'	S	04-03-13 15:20		460712-007
EW-1A @ 15'	S	04-03-13 16:00		460712-008
EW-1B @ 3'	S	04-03-13 16:30		460712-009
EW-1B @ 15'	S	04-03-13 18:00		460712-010



CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Project ID: Work Order Number(s): 460712 Report Date: *11-APR-13* Date Received: *04/05/2013*

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None



Project Id:

Contact: Becky Haskell Project Location: Lea County, NM

Certificate of Analysis Summary 460712

Southern Union Gas Services- Monahans, Monahans, TX

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Date Received in Lab: Fri Apr-05-13 02:20 pm

Report Date: 11-APR-13

oject Location: Lea County, NM								Project Ma	nager:	Nicholas Stra	ccione		
	Lab Id:	460712-0	001	460712-0	02	460712-0	03	460712-0	004	460712-0	005	460712-	006
	Field Id:	NWW-1	@ 3'	NWW-1 @	15'	NWW-1A @	@ 15'	NWW-1B	@ 3'	NWW-1C	@ 3'	EW-1 @	9 3'
Analysis Requested	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	-
	Sampled:	Apr-03-13	09:30	Apr-03-13 1	0:00	Apr-03-13 1	11:45	Apr-03-13	13:30	Apr-03-13	14:30	Apr-03-13	15:00
BTEX by EPA 8021B	Extracted:	Apr-08-13	09:20	Apr-08-13 (9:20							Apr-08-13	09:20
	Analyzed:	Apr-08-13	15:01	Apr-08-13 1	5:17							Apr-08-13	15:34
	Units/RL:	mg/kg	RL	mg/kg	RL							mg/kg	RL
Benzene		ND	0.00106	ND	0.00104							ND	0.00110
Toluene		ND	0.00212	ND	0.00209							ND	0.00221
Ethylbenzene		ND	0.00106	ND	0.00104							ND	0.00110
m_p-Xylenes		ND	0.00212	ND	0.00209							ND	0.00221
o-Xylene		ND	0.00106	ND	0.00104							ND	0.00110
Total Xylenes		ND	0.00106	ND	0.00104							ND	0.00110
Total BTEX		ND	0.00106	ND	0.00104							ND	0.00110
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-08-13	Apr-08-13 10:00		0:00	Apr-08-13 1	10:00	Apr-08-13	10:00	Apr-08-13	10:00	Apr-08-13	10:00
	Analyzed:	Apr-08-13 18:00		Apr-08-13 18:22		Apr-08-13 18:43		Apr-08-13 19:05		Apr-08-13	19:27	Apr-08-13	20:32
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		120	4.00	760	20.0	97.0	4.00	1220	20.0	13.1	4.00	3910	100
Percent Moisture	Extracted:												
	Analyzed:	Apr-08-13	09:30	Apr-08-13 (9:30	Apr-08-13 0	09:30	Apr-08-13	09:30	Apr-08-13	09:30	Apr-08-13	09:30
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		5.69	1.00	4.91	1.00	2.83	1.00	8.57	1.00	5.80	1.00	9.92	1.00
TPH By SW8015 Mod	Extracted:	Apr-08-13	13:40	Apr-08-13 1	3:40							Apr-08-13	13:40
	Analyzed:	Apr-08-13	20:41	Apr-08-13 2	21:06							Apr-08-13	21:58
	Units/RL:	mg/kg	RL	mg/kg	RL							mg/kg	RL
C6-C12 Gasoline Range Hydrocarbons		ND	15.8	ND	15.7							ND	16.6
C12-C28 Diesel Range Hydrocarbons		ND	15.8	ND	15.7							ND	16.6
C28-C35 Oil Range Hydrocarbons		ND	15.8	ND	15.7							ND	16.6
Total TPH		ND	15.8	ND	15.7							ND	16.6

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.

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Nicholas Straccione Project Manager



Project Id:

Contact: Becky Haskell

Project Location: Lea County, NM

Certificate of Analysis Summary 460712

Southern Union Gas Services- Monahans, Monahans, TX

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Date Received in Lab: Fri Apr-05-13 02:20 pm

Report Date: 11-APR-13

oject Location: Lea County, NM								Report	Dutt	11761 (15	
								Project Mai	nager:	Nicholas Straccione	
	Lab Id:	460712-0	07	460712-0	08	460712-0	09	460712-0	010		
A se selver in Decouver of a I	Field Id:	EW-1 @	15'	EW-1A @	15'	EW-1B @	3'	EW-1B @	15'		
Analysis Requested	Depth:										
	Matrix:	SOIL		SOIL		SOIL		SOIL			
	Sampled:	Apr-03-13	15:20	Apr-03-13 1	6:00	Apr-03-13 1	6:30	Apr-03-13	18:00		
BTEX by EPA 8021B	Extracted:	Apr-08-13	09:20								
	Analyzed:	Apr-08-13	15:50								
	Units/RL:	mg/kg	RL								
Benzene		ND	0.00102								
Toluene		ND	0.00204								
Ethylbenzene		ND	0.00102								
m_p-Xylenes		ND	0.00204								
o-Xylene		ND	0.00102								
Total Xylenes		ND	0.00102								
Total BTEX		ND	0.00102								
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-08-13	10:00	Apr-08-13 1	0:00	Apr-08-13 1	0:00	Apr-08-13	10:00		
	Analyzed:	Apr-08-13	20:54	Apr-08-13 2	1:15	Apr-08-13 2	21:37	Apr-08-13	21:59		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		1150	20.0	1070	20.0	221	10.0	165	20.0		
Percent Moisture	Extracted:										
	Analyzed:	Apr-08-13	09:30	Apr-08-13 0	9:30	Apr-08-13 0)9:30	Apr-08-13 (09:30		
	Units/RL:	%	RL	%	RL	%	RL	%	RL		
Percent Moisture		3.06	1.00	2.43	1.00	3.95	1.00	2.63	1.00		
TPH By SW8015 Mod	Extracted:	Apr-08-13	13:40								
	Analyzed:	Apr-08-13	22:22								
	Units/RL:	mg/kg	RL								
C6-C12 Gasoline Range Hydrocarbons	'	ND	15.5								
C12-C28 Diesel Range Hydrocarbons		ND	15.5								
C28-C35 Oil Range Hydrocarbons		ND	15.5								
Total TPH		ND	15.5								

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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Nicholas Straccione Project Manager

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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 SD	DL 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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 (813) 620-2033

 (432) 563-1800
 (432) 563-1713

 (770) 449-8800
 (770) 449-5477

 (602) 437-0330
 (432) 563-1713

Final 1.001



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Vork Orders: 460712	2, 460712 Sample: 460712-001 / SMP		Project II					
Lab Batch #: 910870	Batch: 1 Matrix: Soil SURROGATE RECOVERY STUDY							
Units: mg/kg								
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
	Analytes			[D]				
1,4-Difluorobenzene		0.0290	0.0300	97	80-120			
4-Bromofluorobenzene		0.0272	0.0300	91	80-120			
Lab Batch #: 910870	Sample: 460712-002 / SMP	Batel	h: ¹ Matrix	:Soil				
Units: mg/kg	Date Analyzed: 04/08/13 15:17	SU	RROGATE RI	ECOVERY S	STUDY			
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenzene		0.0324	0.0300	108	80-120			
4-Bromofluorobenzene		0.0280	0.0300	93	80-120			
Lab Batch #: 910870	Sample: 460712-006 / SMP	Batcl	h: ¹ Matrix	:Soil	1			
Units: mg/kg	Date Analyzed: 04/08/13 15:34	SURROGATE RECOVERY STUDY						
BTEX by EPA 8021B Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenzene		0.0303	0.0300	101	80-120			
4-Bromofluorobenzene		0.0278	0.0300	93	80-120			
Lab Batch #: 910870	Sample: 460712-007 / SMP	Batcl		• Soil				
Units: mg/kg	Date Analyzed: 04/08/13 15:50		RROGATE RI	-	STUDY			
	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
	Analytes			[D]				
1,4-Difluorobenzene		0.0298	0.0300	99	80-120			
4-Bromofluorobenzene		0.0311	0.0300	104	80-120			
Lab Batch #: 910882	Sample: 460712-001 / SMP	SMP Batch: 1 Matrix: Soil						
Units: mg/kg	Date Analyzed: 04/08/13 20:41	SURROGATE RECOVERY STUDY						
TPH By SW8015 Mod Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane		100	99.5	101	70-135			

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

ork Orders : 460712 Lab Batch #: 910882	Sample: 460712-002 / SMP	Project ID: Batch: 1 Matrix: Soil							
Units: mg/kg	Date Analyzed: 04/08/13 21:06	SURROGATE RECOVERY STUDY							
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag			
	Analytes			[D]					
1-Chlorooctane		101	99.8	101	70-135				
o-Terphenyl		52.6	49.9	105	70-135				
Lab Batch #: 910882	Sample: 460712-006 / SMP	Batc							
Units: mg/kg	Date Analyzed: 04/08/13 21:58	SU	RROGATE R	ECOVERY S	STUDY				
TPH]	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag			
1-Chlorooctane		99.3	99.8	99	70-135				
o-Terphenyl		53.1	49.9	106	70-135				
Lab Batch #: 910882	Sample: 460712-007 / SMP	Batc	h: ¹ Matrix	:Soil	1 1				
Units: mg/kg	Date Analyzed: 04/08/13 22:22	SURROGATE RECOVERY STUDY							
TPH By SW8015 Mod Analytes		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag			
1-Chlorooctane	Anarytes	101	100	101	70-135				
o-Terphenyl		52.3	50.0	101	70-135				
Lab Batch #: 910870	Sample: 636306-1-BLK / BL			r•Solid					
Units: mg/kg	Date Analyzed: 04/08/13 11:11		RROGATE R		STUDY				
	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag			
	Analytes			[D]					
1,4-Difluorobenzene		0.0258	0.0300	86	80-120				
4-Bromofluorobenzene		0.0324	0.0300	108	80-120				
Lab Batch #: 910882	Sample: 636320-1-BLK / BL	K Batc	h: ¹ Matrix	c:Solid					
Units: mg/kg	Date Analyzed: 04/08/13 16:55	SURROGATE RECOVERY STUDY							
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag			
1-Chlorooctane	rxnary wo	99.6	99.9	100	70-135				
. chlorooeune		JJ.0	17.7	100	10-155				

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Lab Batch #: 910870	Sample: 636306-1-BKS / BI		-						
Units: mg/kg	Date Analyzed: 04/08/13 10:22	SURROGATE RECOVERY STUDY							
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag			
	Analytes			[D]					
1,4-Difluorobenzene 4-Bromofluorobenzene		0.0324	0.0300	108	80-120				
		0.0312	0.0300	104	80-120				
Lab Batch #: 910882	Sample: 636320-1-BKS / BI				~~~~~				
Units: mg/kg	Date Analyzed: 04/08/13 16:04	SU	RROGATE R	ECOVERY S	STUDY				
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag			
1-Chlorooctane		95.8	100	96	70-135				
o-Terphenyl		59.7	50.0	119	70-135				
Lab Batch #: 910870	Sample: 636306-1-BSD / BS	SD Batcl	h: ¹ Matrix	:Solid	, , ,				
Units: mg/kg	Date Analyzed: 04/08/13 10:55	SURROGATE RECOVERY STUDY							
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag			
	Analytes			[D]					
1,4-Difluorobenzene		0.0305	0.0300	102	80-120				
4-Bromofluorobenzene		0.0328	0.0300	109	80-120				
Lab Batch #: 910882	Sample: 636320-1-BSD / BS								
Units: mg/kg	Date Analyzed: 04/08/13 16:30	SURROGATE RECOVERY STUDY							
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag			
1-Chlorooctane	Analytes	96.9	100	97	70-135				
o-Terphenyl		60.1	50.1	120	70-135				
Lab Batch #: 910870	Sample: 460525-001 S / MS				,0155				
Units: mg/kg	Date Analyzed: 04/08/13 16:06		RROGATE R		STUDY				
	•				1				
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag			
1,4-Difluorobenzene	Analytes	0.0320	0.0300	107	80-120				

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Vork Orders: 460712	Project ID:							
Lab Batch #: 910882	Sample: 460785-001 S / MS	B Batc	h: ¹ Matrix:	Soil				
Units: mg/kg	Date Analyzed: 04/09/13 02:08	SURROGATE RECOVERY STUDY						
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	Analytes	102	100	102	70-135			
o-Terphenyl		57.6	50.1	115	70-135			
Lab Batch #: 910870	Sample: 460525-001 SD / M	ASD Batc	h: 1 Matrix	Soil				
Units: mg/kg	Date Analyzed: 04/08/13 16:23	SURROGATE RECOVERY STUDY						
BTEX by EPA 8021B Analytes		Amount Found [A]	Found Amount Recover		Control Limits %R	Flags		
1,4-Difluorobenzene	1 mary tes	0.0322 0.0300 10		107	80-120			
4-Bromofluorobenzene		0.0279	0.0300	93	80-120			
Lab Batch #: 910882	Sample: 460785-001 SD / M	ASD Batc	h: 1 Matrix	Soil	1			
Units: mg/kg	Date Analyzed: 04/09/13 02:33	SU	RROGATE RI	ECOVERY S	STUDY			
TPH]	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooctane	Analytes	101	100	101	70-135			
o-Terphenyl		58.3	50.1	116	70-135			

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution





Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460712, 460712								ect ID:			
Analyst: KEB	Da	ate Preparo	ed: 04/08/201		Date Analyzed: 04/08/2013						
Lab Batch ID: 910870 Sample: 636306-1-B	BKS Batch #: 1				Matrix: Solid						
Units: mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
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
	0.00100	0.100	0.0000			0.00.70		-	5 0.100		
Benzene	< 0.00100	0.100	0.0923	92	0.0992	0.0953	96	3	70-130	35	
Toluene	< 0.00200	0.100	0.0946	95	0.0992	0.0962	97	2	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.0820	82	0.0992	0.0844	85	3	71-129	35	
m_p-Xylenes	< 0.00200	0.200	0.170	85	0.198	0.174	88	2	70-135	35	
o-Xylene	< 0.00100	0.100	0.0938	94	0.0992	0.0951	96	1	71-133	35	
Analyst: AMB	Da	ate Preparo	ed: 04/08/201	.3	Date Analyzed: 04/08/2013						
Lab Batch ID: 911048 Sample: 636424-1-B	KS	Batch	n#: 1			Matrix: Solid					
Units: ^{mg/kg}	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
Inorganic Anions by EPA 300/300.1 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
Chloride	<2.00	50.0	49.3	99	50.0	49.2	98	0	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460712, 4 Analyst: KEB	460712	Da	ate Prepar	red: 04/08/201	3				ject ID: nalyzed: ()	04/08/2013				
Lab Batch ID: 910882	Sample: 636320-1-B	BKS Batch #: 1					Matrix: Solid							
Units: mg/kg			BLAN	K /BLANK S	SPIKE / H	BLANK S	PIKE DUPL	ICATE	RECOVE	ERY STUD	Ŷ			
TPH By SW8	015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag		
Analytes			[B]	[C]	[D]	[E]	Result [F]	[G]			ľ			
C6-C12 Gasoline Range Hydro	ocarbons	<15.0	1000	942	94	1000	944	94	0	70-135	35			
C12-C28 Diesel Range Hydroc	carbons	<15.0	1000	994	99	1000	981	98	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460712				Du	oject ID:				
Lab Batch #: 911048 Date Analyzed: 04/08/2013	Date Prej	pared: 04/0	8/2013		nalyst: A				
QC- Sample ID: 460525-005 S Reporting Units: mg/kg	Batch #: 1 Matrix: Soil MATRIX / MATRIX SPIKE RECOVERY STUDY								
Inorganic Anions by EPA 300		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]		Control Limits %R	Flag		
Chloride		236	250	484	99	80-120			
Lab Batch #: 911048	I		-	<u>.</u>					
Date Analyzed: 04/08/2013	Date Pre	pared: 04/0	8/2013	А	nalyst: A	MB			
QC- Sample ID: 460712-010 S	Ba	tch #: 1		Ν	Matrix: S	oil			
Reporting Units: mg/kg		MATE	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY		
Inorganic Anions by EPA 300 Analytes		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag		
Chloride		165	500	658	99	80-120			

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference [E] = 200*(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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460712						Project II	D:					
Lab Batch ID: 910870 Date Analyzed: 04/08/2013	QC- Sample ID: Date Prepared:				tch #: alyst:	1 Matri KEB	x: Soil					
Reporting Units: mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag	
Analytes	[A]	[B]	[U]	50K [D]	E]	Kesunt [r]	56K [G]	70	70K	70KPD		
Benzene	<0.00106	0.106	0.0958	90	0.106	0.0863	81	10	70-130	35		
Toluene	<0.00212	0.106	0.0984	93	0.106	0.0827	78	17	70-130	35		
Ethylbenzene	<0.00106	0.106	0.0884	83	0.106	0.0749	71	17	71-129	35		
m_p-Xylenes	<0.00212	0.212	0.184	87	0.211	0.153	73	18	70-135	35		
o-Xylene	<0.00106	0.106	0.0971	92	0.106	0.0787	74	21	71-133	35		
Lab Batch ID: 910882	QC- Sample ID:			Ba	tch #:		x: Soil					
Date Analyzed: 04/09/2013	Date Prepared:	04/08/2	013	An	alyst:	KEB						
Reporting Units: mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY			
TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag	
Analytes	[A]	[B]	[0]	[D]	[E]	Acout [1']	[G]	/0				
C6-C12 Gasoline Range Hydrocarbons	<16.9	1130	1110	98	1120	1070	96	4	70-135	35		
C12-C28 Diesel Range Hydrocarbons	57.4	1130	1160	98	1120	1130	96	3	70-135	35		

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference RPD = 200*|(C-F)/(C+F)| Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E



Sample Duplicate Recovery



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460712

Lab Batch #: 910789				Project I	D:	
Date Analyzed: 04/08/2013 09:30	Date Prepar	ed: 04/08/2013	Anal	yst:WRU		
QC- Sample ID: 460679-007 D	Batch	n#: 1	Mat	rix: Soil		
Reporting Units: %		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte			[B]			
Percent Moisture		2.28	2.24	2	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

Relinquished by	Relinquished by	Relinquished by	special	6	00	00	00	90 0	5Q	Q 4	20	ତ ତ	2	LAB # (lab use only)	ORDER #:	(lab use only)	·.·							The Env	Xer
	the Repha	Refer Howhell	special instructions:	EW-1B @ 15'	EW-1B @ 3'	EW-1A @ 15'	EW-1 @ 15'	EW-1 @ 3'	NWW- 1C @ 3'	NWW-1B @ 3'	NWW-1A @ 15'	NWW-1 @ 15'	NWW-1 @ 3'	FIELD	# HUU'IIQ			Sampler Signature: 1000	Telephone No: 432.520.7720	City/State/Zip: Midland, TX 79703	Company Address: 2057 Commerce	Company Name Nova Safety and Environmental	Project Manager: Becky Haskell	· 2	Xenco Laboratories
Date	Date U/5/13	4/5/13	3														 	a Hau		9703	rce	and Environme			0
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					_									Ending Depth											
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11:20	Time	13:50					×	×	-			×	×	TPH: 418.1 8015M 80 TPH: TX 1005 TX 1006	015B			1 	Form	ет 1 <u>1</u> 1 г.	Project Loc:	Proj	Project Name:		COT.
	្រ្ត	្តិក្ខុក្ខ		<u>.</u>	-					-				Cations (Ca, Mg, Na, K)	, 				at:	PO #:	Loc	Project #:	lame		R CIS
Temperature Upon Receipt:	Sample Hand Delivered by Sampler/Client Rep by Courier? UPS	stody	Sample Containers Intact? VOCs Free of Headspace?											Anions (CI, SO4, Alkalinity)		TOTAL:			凤	Ţ.					DN.
ature	nple Hand Delivered by Sampler/Client Rep. ? by Courier? UPS	on co / seal / seal	Cont ree o											SAR / ESP / CEC		OTAL:			Standard				UG 4	ᆔᆋ	ANA
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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Southern Union Gas Services- MonahanAcceptable Temperature Range: 0 - 6 degCDate/ Time Received: 04/05/2013 02:20:00 PMAir and Metal samples Acceptable Range: AmbientWork Order #: 460712Temperature Measuring device used :

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	0	
#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 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 460955

for

Southern Union Gas Services- Monahans

Project Manager: Becky Haskell

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

17-APR-13

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)



17-APR-13



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

Reference: XENCO Report No(s): 460955 SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904 Project Address: Lea County, NM

Becky Haskell:

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(s) 460955. 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. 460955 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

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Sample Cross Reference 460955



Southern Union Gas Services- Monahans, Monahans, TX

SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
EW-2 @ 3'	S	04-05-13 13:21		460955-001
EW-2A @ 3'	S	04-09-13 11:32		460955-002
EW-2 @ 15'	S	04-05-13 13:40		460955-003
EW-2A @ 15'	S	04-09-13 11:50		460955-004



CASE NARRATIVE

Client Name: Southern Union Gas Services- Monahans Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Project ID: Work Order Number(s): 460955 Report Date: 17-APR-13 Date Received: 04/10/2013

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-911503 TPH By SW8015 Mod SW8015MOD_NM

Batch 911503, C12-C28 Diesel Range Hydrocarbons, C6-C12 Gasoline Range Hydrocarbons recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Samples affected are: 460955-003. The Laboratory Control Sample for C12-C28 Diesel Range Hydrocarbons, C6-C12 Gasoline Range Hydrocarbons is within laboratory Control Limits



Contact: Becky Haskell

Certificate of Analysis Summary 460955

Southern Union Gas Services- Monahans, Monahans, TX

Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904



Date Received in Lab: Wed Apr-10-13 12:53 pm

Report Date: 17-APR-13

oject Location: Lea County, NM								Report 1	Date:	17-APR-13	
								Project Man	ager:	Nicholas Straccione	1
	Lab Id:	460955-0	001	460955-0	02	460955-0	003	460955-00	04		
Are alwain De are ested	Field Id:	EW-2 @	3'	EW-2A @	3'	EW-2 @	15'	EW-2A @	15'		
Analysis Requested	Depth:										
	Matrix:	SOIL	,	SOIL		SOIL		SOIL			
	Sampled:	Apr-05-13	13:21	Apr-09-13 1	1:32	Apr-05-13	13:40	Apr-09-13 1	1:50		
BTEX by EPA 8021B	Extracted:	Apr-12-13	09:20			Apr-12-13 (09:20				
	Analyzed:	Apr-12-13	11:51			Apr-12-13	10:12				
	Units/RL:	mg/kg	RL			mg/kg	RL				
Benzene		ND	0.00107			ND	0.00109				
Toluene		ND	0.00214				0.00218				
Ethylbenzene		ND	0.00107			ND	0.00109				
m_p-Xylenes		ND	0.00214				0.00218				
lene		ND	0.00107				0.00109				
al Xylenes		ND	0.00107				0.00109				
Total BTEX		ND	0.00107			ND	0.00109				
Inorganic Anions by EPA 300/300.1	Extracted:	Apr-17-13	10:00	Apr-17-13	0:00	Apr-17-13	10:00	Apr-17-13 1	0:00		
	Analyzed:	Apr-17-13	13:31	Apr-17-13	4:14	Apr-17-13	14:36	Apr-17-13 1	5:41		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		2800	100	163	10.0	4110	200	ND	20.0		
Percent Moisture	Extracted:										
	Analyzed:	Apr-10-13	17:05	Apr-10-13	7:05	Apr-10-13	17:05	Apr-10-13 1	7:05		
	Units/RL:	%	RL	%	RL	%	RL	%	RL		
Percent Moisture		6.14	1.00	5.10	1.00	7.87	1.00	3.09	1.00		
TPH By SW8015 Mod	Extracted:	Apr-16-13	15:15			Apr-16-13	15:15				
	Analyzed:	Apr-17-13	01:25			Apr-17-13 (01:57				
	Units/RL:	mg/kg	RL			mg/kg	RL				
C6-C12 Gasoline Range Hydrocarbons		ND	15.9			ND	16.2				
C12-C28 Diesel Range Hydrocarbons		34.5	15.9			ND	16.2				
C28-C35 Oil Range Hydrocarbons		ND	15.9			ND	16.2				
Total TPH		34.5	15.9			ND	16.2				

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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Nicholas Straccione Project Manager

Page 5 of 16



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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(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

Final 1.000



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

'ork Orders : 460955 Lab Batch #: 911306	, Sample: 460955-003 / SMP	Batc	Project I h: 1 Matrix							
Units: mg/kg	Date Analyzed: 04/12/13 10:12		RROGATE R		STUDY					
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag				
	Analytes			[D]						
1,4-Difluorobenzene		0.0281	0.0300	94	80-120					
4-Bromofluorobenzene		0.0297	0.0300	99	80-120					
Lab Batch #: 911306	Sample: 460955-001 / SMP	Bate	-	-						
Units: mg/kg	Date Analyzed: 04/12/13 11:51	SURROGATE RECOVERY STUDY								
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag				
1,4-Difluorobenzene	Analytes	0.0279	0.0300	93	80-120					
4-Bromofluorobenzene		0.0282	0.0300	94	80-120					
Lab Batch #: 911503	Sample: 460955-001 / SMP	Batc	h: ¹ Matrix	r: Soil	1					
Units: mg/kg	Date Analyzed: 04/17/13 01:25		RROGATE R		STUDY					
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag				
	Analytes			[D]						
1-Chlorooctane		93.7	99.7	94	70-135					
o-Terphenyl		48.4	49.9	97	70-135					
Lab Batch #: 911503	Sample: 460955-003 / SMP	Batc	h: 1 Matrix	c: Soil						
Units: mg/kg	Date Analyzed: 04/17/13 01:57	SU	RROGATE R	ECOVERY S	STUDY					
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag				
1-Chlorooctane		94.4	99.8	95	70-135					
o-Terphenyl		48.6	49.9	93	70-135					
Lab Batch #: 911306	Sample: 636550-1-BLK / BL				10 100					
Units: mg/kg	Date Analyzed: 04/12/13 09:39		RROGATE R		STUDY					
	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag				
1,4-Difluorobenzene		0.0258	0.0300	86	80-120					
,		0.0200	0.0500	00	00120					

* 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 / BAll results are based on MDL and validated for QC purposes.



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Lab Batch #: 911503	Sample: 636699-1-BLK / B		-							
Units: mg/kg	Date Analyzed: 04/16/13 22:41	SU	RROGATE R	ECOVERY	STUDY					
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag				
	Analytes			[D]						
1-Chlorooctane		109	99.6	109						
o-Terphenyl		57.3	49.8	115	/0-135					
Lab Batch #: 911306	Sample: 636550-1-BKS / B									
Units: mg/kg	Date Analyzed: 04/12/13 09:07	SURROGATE RECOVERY STUDY								
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage				
1.4-Difluorobenzene	Analytes	0.0220	0.0300	110	80.120					
4-Bromofluorobenzene		0.0329	0.0300	110	80-120					
Lab Batch #: 911503	Sample: 636699-1-BKS / B									
	•		RROGATE R		STUDY					
Units: mg/kg	Date Analyzed: 04/16/13 21:32				Control Limits %R 70-135 70-135 STUDY Control Limits %R 80-120 80-120 STUDY Control Limits %R 70-135 70-135 70-135 70-135 STUDY Control Limits %R 80-120 STUDY Study 80-120 80-120 80-120					
TPH 1	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flage				
1-Chlorooctane	Anary CS	114	99.8	114	70-135					
o-Terphenyl		50.2	49.9	101						
Lab Batch #: 911306	Sample: 636550-1-BSD / B									
	•		RROGATE R		STUDY					
Units: mg/kg	Date Analyzed: 04/12/13 09:23				1					
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flage				
1,4-Difluorobenzene		0.0307	0.0300	102	80-120					
4-Bromofluorobenzene		0.0301	0.0300	100						
Lab Batch #: 911503	Sample: 636699-1-BSD / B	SD Batcl		: Solid	<u> </u>					
Units: mg/kg	Date Analyzed: 04/16/13 22:07		RROGATE R		STUDY					
	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R 70-135 70-135 STUDY Control Limits %R 80-120 80-120 STUDY Control Limits %R 70-135 STUDY Control Limits %R 80-120 80-120 STUDY Control Limits %R 80-120 STUDY Control Limits %R 80-120	Flag				
	· · · · · · · · · · · · · · · · · · ·									
1-Chlorooctane		113	100	113	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 / BAll results are based on MDL and validated for QC purposes.



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

ork Orders : 460955			Project I			
Lab Batch #: 911306	Sample: 461087-002 S / MS			-		
Units: mg/kg	Date Analyzed: 04/12/13 16:30	SU.	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene		0.0324	0.0300	108	80-120	
4-Bromofluorobenzene		0.0302	0.0300	101	80-120	
Lab Batch #: 911503	Sample: 460955-001 S / MS	5 Batel	h: ¹ Matrix	:Soil	•	
Units: mg/kg	Date Analyzed: 04/17/13 02:31	SU.	RROGATE R	ECOVERYS	STUDY	
TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		122	100	122	70-135	
o-Terphenyl		51.5	50.1	103	70-135	
Lab Batch #: 911306	Sample: 461087-002 SD / N	ASD Batcl	h: ¹ Matrix	:Soil	1	
Units: mg/kg	Date Analyzed: 04/12/13 16:47	SU	RROGATE R	ECOVERY	STUDY	
BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1,4-Difluorobenzene		0.0328	0.0300	109	80-120	
4-Bromofluorobenzene		0.0301	0.0300	100	80-120	
Lab Batch #: 911503	Sample: 460955-001 SD / N	ASD Batcl	h: 1 Matrix	: Soil		
Units: mg/kg	Date Analyzed: 04/17/13 03:04	SU	RROGATE R	ECOVERY	STUDY	
TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
	Analytes			[D]		
1-Chlorooctane		111	99.9	111	70-135	
o-Terphenyl		47.6	50.0	95	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 / BAll results are based on MDL and validated for QC purposes.



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460955								ject ID:			
Analyst: DYV	Da	ate Prepar	ed: 04/12/201	3			Date A	nalyzed: ()	4/12/2013		
Lab Batch ID: 911306 Sample: 636550-1-E	BKS	Batcl	h#: 1					Matrix: S	olid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	LICATE 1	RECOVE	CRY STUD	Y	
BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Benzene	< 0.00100	0.100	0.0758	76	0.100	0.0865	87	13	70-130	35	
Toluene	< 0.00200	0.100	0.0761	76	0.100	0.0877	88	14	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.0839	84	0.100	0.0936	94	11	71-129	35	
m_p-Xylenes	< 0.00200	0.200	0.151	76	0.200	0.168	84	11	70-135	35	
o-Xylene	<0.00100	0.100	0.0745	75	0.100	0.0872	87	16	71-133	35	
Analyst: AMB	Da	ate Prepar	ed: 04/17/201	3			Date A	nalyzed: ()	4/17/2013		
Lab Batch ID: 911595 Sample: 636746-1-E	BKS	Batcl	h #: 1					Matrix: S	olid		
Units: ^{mg/kg}		BLAN	K /BLANK S	SPIKE / E	BLANK S	PIKE DUPI	JCATE 1	RECOVE	CRY STUD	Y	
Inorganic Anions by EPA 300/300.1 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
Chloride	<2.00	50.0	51.1	102	50.0	50.8	102	1	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460955 Analyst: KEB		Da	ate Prepar	red: 04/16/201	3				ject ID: nalyzed: ()	04/16/2013		
Lab Batch ID: 911503	Sample: 636699-1-B	KS	Batc	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUD										
TPH By SW80	15 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes			[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C12 Gasoline Range Hydroc	arbons	<15.0	998	940	94	1000	941	94	0	70-135	35	
C12-C28 Diesel Range Hydroca	rbons	<15.0	998	1050	105	1000	1060	106	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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Analytes	[A] [B] 2800 2500	5640 114	80-120	
Inorganic Anions by EPA 300	Parent Sample Spike Result Added	Spiked Sample Result %R [C] [D]	Control Limits %R	Flag
Reporting Units: mg/kg	MATRIX / MA	TRIX SPIKE RECO	VERY STU	DY
QC- Sample ID: 460955-001 S	Batch #: 1	Matrix: S	loil	
Date Analyzed: 04/17/2013	Date Prepared: 04/17/2013	Analyst: A	MB	
Work Order #: 460955 Lab Batch #: 911595		Project ID	:	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B Relative Percent Difference [E] = 200*(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: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460955						Project II	D:				
Lab Batch ID: 911306 Date Analyzed: 04/12/2013	QC- Sample ID: Date Prepared:				tch #: alyst:	1 Matri DYV	x: Soil				
Reporting Units: mg/kg		\mathbf{M}	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]	[0]	[D]	[E]	Result [1]	[G]	/0	Jun		
Benzene	<0.00103	0.103	0.0860	83	0.103	0.0848	82	1	70-130	35	
Toluene	< 0.00205	0.103	0.0887	86	0.103	0.0931	90	5	70-130	35	
Ethylbenzene	< 0.00103	0.103	0.0955	93	0.103	0.0982	95	3	71-129	35	
m_p-Xylenes	< 0.00205	0.205	0.173	84	0.207	0.179	86	3	70-135	35	
o-Xylene	<0.00103	0.103	0.0890	86	0.103	0.0976	95	9	71-133	35	
Lab Batch ID: 911503	QC- Sample ID:	460955	-001 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed: 04/17/2013	Date Prepared:	04/16/2	013	An	alyst:	KEB					
Reporting Units: mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]	[0]	[D]	[E]		[G]				
C6-C12 Gasoline Range Hydrocarbons	<16.0	1070	1000	93	1060	1030	97	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	34.5	1070	1160	105	1060	1180	108	2	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/BRelative Percent Difference RPD = 200*|(C-F)/(C+F)| Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

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



Sample Duplicate Recovery



Project Name: SUG 4 Inch Lateral (2/18/13) 1RP-02-13-2904

Work Order #: 460955

Lab Batch #: 911058]	Project I	D:	
Date Analyzed: 04/10/2013 17:05	Date Prepared	1: 04/10/2013	Anal	yst:WRU		
QC- Sample ID: 460897-001 D	Batch #	#: 1	Mat	rix: Soil		
Reporting Units: %		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture	Pa	arent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[]	[B]			
Percent Moisture		16.6	16.9	2	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

	Relinquished by:	Relinquished by	Relinquished by	Special Ir							PO V	ပ္ပ	02	P	LAB # (lab use only)	ORDER #	(lab use only)									Xen The Envi
		5	ed by: 12 Ard	Special Instructions:								- - - -				# 100			Sampler Signature:	Telephone No:	City/State/Zip:	Company Address:	Company Name	Project Manager:		Xenco Laboratories
		le ama-	hell								EW-2A @ 15	EW-2 @ 15	EW-2A @ 3'	EW-2 @ 3'	FIELD CODE	140 J			nature: <u>/</u> /						•	borat
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	Temperature Upon Receipt:	Sample Hand Delivered by Sampler/Client Rep. ? by Courier? UPS	Labels on container(s) Custody seals on container(s) Custody seals on cooler(s)	Laboratory Comments: Sample Containers Intact? VOCs Free of Headspace?											Semivolatiles			yze F			 	F) Late	43	3/S F
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Final 1.000



XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Southern Union Gas Services- MonahanAcceptable Temperature Range: 0 - 6 degCDate/ Time Received: 04/10/2013 12:53:00 PMAir and Metal samples Acceptable Range: AmbientWork Order #: 460955Temperature Measuring device used :

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	1.5	
#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?	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 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 479905

for Regency Gas

Project Manager: Curt Stanley

4" Lateral 2/18/13

27-FEB-14

Collected By: Client





12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-14-16-TX), Arizona (AZ0765), Florida (E871002), Louisiana (03054) New Jersey (TX007), North Carolina(681), Oklahoma (9218), Pennsylvania (68-03610)

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-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)



27-FEB-14

Project Manager: **Curt Stanley Regency Gas** 801 South Loop 464 Monahans, TX 79756

Reference: XENCO Report No(s): **479905 4'' Lateral 2/18/13** Project Address: Lea County, NM

Curt Stanley:

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(s) 479905. 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. 479905 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.

Ams Boah

 Kelsey Brooks

 Project Manager

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Sample Cross Reference 479905



Regency Gas, Monahans, TX

4" Lateral 2/18/13

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SB-1 @10'	S	02-19-14 10:10	- 10 ft	479905-001
SB-1 @15'	S	02-19-14 10:20	- 15 ft	479905-002
SB-1 @20'	S	02-19-14 10:30	- 20 ft	479905-003
SB-1 @25'	S	02-19-14 10:45	- 25 ft	479905-004
SB-1 @30'	S	02-19-14 11:00	- 30 ft	479905-005
SB-1 @35'	S	02-19-14 11:15	- 35 ft	479905-006
SB-2 @10'	S	02-19-14 11:55	- 10 ft	479905-007
SB-2 @15'	S	02-19-14 12:05	- 15 ft	479905-008
SB-2 @20'	S	02-19-14 12:15	- 20 ft	479905-009
SB-2 @25'	S	02-19-14 12:25	- 25 ft	479905-010
SB-2 @30'	S	02-19-14 12:35	- 30 ft	479905-011
SB-2 @35'	S	02-19-14 12:45	- 35 ft	479905-012
SB-2 @40'	S	02-19-14 12:55	- 40 ft	479905-013
SB-3 @5'	S	02-19-14 13:00	- 5 ft	479905-014
SB-3 @10'	S	02-19-14 13:10	- 10 ft	479905-015
SB-3 @20'	S	02-19-14 13:30	- 20 ft	479905-016
SB-3 @30	S	02-19-14 13:50	- 30 ft	479905-017
SB-3 @35'	S	02-19-14 14:10	- 35 ft	479905-018





Client Name: Regency Gas Project Name: 4'' Lateral 2/18/13

Project ID: Work Order Number(s): 479905
 Report Date:
 27-FEB-14

 Date Received:
 02/24/2014

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Contact: Curt Stanley Project Location: Lea County, NM

Regency Gas, Monahans, TX

Project Name: 4" Lateral 2/18/13



Date Received in Lab: Mon Feb-24-14 09:10 am

Report Date: 27-FEB-14

roject Location: Lea County, NM								Project Ma	nager: 1	Kelsey Brook	s		
	Lab Id:	479905-0	001	479905-0	02	479905-0	003	479905-0		479905-(1	479905-	006
	Field Id:	SB-1 @		SB-1 @1		SB-1 @2		SB-1 @2		SB-1 @		SB-1 @	
Analysis Requested					5				23				
	Depth:	10 ft		15 ft		20 ft		25 ft		30 ft		35 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-19-14	10:10	Feb-19-14 1	0:20	Feb-19-14	10:30	Feb-19-14	10:45	Feb-19-14	11:00	Feb-19-14	11:15
BTEX by EPA 8021B	Extracted:	Feb-25-14	14:00	Feb-25-14 1	4:00	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00
	Analyzed:	Feb-25-14	19:56	Feb-25-14 2	20:12	Feb-25-14	20:28	Feb-25-14	20:44	Feb-25-14	21:00	Feb-25-14	21:16
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00104	ND	0.00104	ND	0.00102	ND	0.00104	ND	0.00104	ND	0.00103
Toluene		ND	0.00209	ND	0.00208	ND	0.00205	ND	0.00207	ND	0.00207	ND	0.00206
Ethylbenzene		ND	0.00104	ND	0.00104	ND	0.00102	ND	0.00104	ND	0.00104	ND	0.00103
m_p-Xylenes		ND	0.00209	ND	0.00208	ND	0.00205	ND	0.00207	ND	0.00207	ND	0.00206
o-Xylene		ND	0.00104		0.00104	ND	0.00102	ND	0.00104	ND	0.00104	ND	0.00103
Total Xylenes		ND	0.00104	ND 0.00104 ND 0.00104		ND	0.00102	ND	0.00104	ND 0.00104		ND	0.00103
Total BTEX		ND			0.00104	ND	0.00102	ND	0.00104	ND 0.00		ND	0.00103
Inorganic Anions by EPA 300/300.1	Extracted:	Feb-25-14	09:00	Feb-25-14 (9:00	Feb-25-14	09:00	Feb-25-14	09:00	Feb-25-14	09:00	Feb-25-14	09:00
	Analyzed:	Feb-25-14	13:01	Feb-25-14 1	3:46	Feb-25-14	14:09	Feb-25-14	14:32	Feb-25-14	14:54	Feb-25-14	15:17
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1190	42.0	1900	41.7	1840	41.0	596	20.9	127	10.4	68.8	4.13
Percent Moisture	Extracted:												
	Analyzed:	Feb-25-14	10:34	Feb-25-14 1	0:34	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		4.74	1.00	4.15	1.00	2.51	1.00	4.35	1.00	3.85	1.00	3.13	1.00
TPH By SW8015 Mod	Extracted:	Feb-24-14	16:00	Feb-24-14 1	6:00	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00
	Analyzed:	Feb-26-14	10:58	Feb-26-14 1	2:17	Feb-26-14	12:44	Feb-26-14	13:11	Feb-26-14	13:37	Feb-26-14	14:05
	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	15.7	ND	15.6	ND	15.4	ND	15.7	ND	15.6	ND	15.5
C12-C28 Diesel Range Hydrocarbons		ND	15.7	ND	15.6	ND	15.4	ND	15.7	ND	15.6	ND	15.5
C28-C35 Oil Range Hydrocarbons		ND	15.7	ND	15.6	ND	15.4	ND	15.7	ND	15.6	ND	15.5
Total TPH		ND	15.7	ND	15.6	ND	15.4	ND	15.7	ND	15.6	ND	15.5

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Huns Boah

Kelsey Brooks Project Manager



Contact: Curt Stanley **Project Location:** Lea County, NM

Regency Gas, Monahans, TX

Project Name: 4" Lateral 2/18/13



Date Received in Lab: Mon Feb-24-14 09:10 am

Report Date: 27-FEB-14

oject Location: Lea County, NM								-					
								Project Ma	nager:	Kelsey Brook	s		
	Lab Id:	479905-0	07	479905-0	08	479905-0	009	479905-0	010	479905-0	011	479905-	012
Anglusia Dogu astad	Field Id:	SB-2 @1	0'	SB-2 @1	5'	SB-2 @2	20'	SB-2 @2	25'	SB-2 @3	30'	SB-2 @	35'
Analysis Requested	Depth:	10 ft		15 ft		20 ft		25 ft		30 ft		35 ft	
	Matrix:	SOIL		SOIL		SOIL	,	SOIL		SOIL		SOIL	
	Sampled:	Feb-19-14	11:55	Feb-19-14 1	2:05	Feb-19-14	12:15	Feb-19-14	12:25	Feb-19-14	12:35	Feb-19-14	12:45
BTEX by EPA 8021B	Extracted:	Feb-25-14	14:00	Feb-25-14 1	4:00	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00
-	Analyzed:	Feb-25-14	21:31	Feb-25-14 2	21:47	Feb-25-14	22:03	Feb-25-14	22:19	Feb-25-14	23:06	Feb-25-14	23:22
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RI
Benzene		ND	0.00105	ND	0.00103	ND	0.00108	ND	0.00104	ND	0.00105	ND	0.0011
Toluene		ND	0.00210	ND	0.00207	ND	0.00216	ND	0.00207	ND	0.00211	ND	0.0022
Ethylbenzene		ND	0.00105	ND	0.00103	ND	0.00108	ND	0.00104	ND	0.00105	ND	0.0011
m_p-Xylenes		ND	0.00210	ND	0.00207	ND	0.00216	ND	0.00207	ND	0.00211	ND	0.0022
o-Xylene		ND	0.00105	ND	0.00103	ND	0.00108	ND	0.00104	ND	0.00105	ND	0.0011
Total Xylenes		ND	0.00105	ND	0.00103	ND	0.00108	ND	0.00104	ND	0.00105	ND	0.001
Total BTEX		ND	0.00105	ND	0.00103	ND	0.00108	ND	0.00104	ND	0.00105	ND	0.0011
Inorganic Anions by EPA 300/300.1	Extracted:	Feb-25-14	09:00	Feb-25-14 (09:00	Feb-25-14	09:00	Feb-25-14	09:00	Feb-25-14	09:00	Feb-25-14	09:00
	Analyzed:	Feb-25-14	16:25	Feb-25-14 1	6:48	Feb-25-14	17:10	Feb-25-14	17:33	Feb-25-14	17:56	Feb-25-14	18:41
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		4740	105	1720	41.5	824	21.8	840	20.7	268	10.6	420	11.
Percent Moisture	Extracted:												
	Analyzed:	Feb-25-14	10:34	Feb-25-14 1	0:34	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		4.81	1.00	3.71	1.00	8.25	1.00	3.42	1.00	5.25	1.00	9.09	1.00
TPH By SW8015 Mod	Extracted:	Feb-24-14	16:00	Feb-24-14 1	6:00	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00
Analyz		Feb-26-14	14:34	Feb-26-14 1	4:59	Feb-26-14	15:24	Feb-26-14	15:49	Feb-26-14	17:11	Feb-27-14	09:26
	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	15.7	ND	15.6	ND	16.3	ND	15.5	ND	15.8	ND	16.
C12-C28 Diesel Range Hydrocarbons		ND	15.7	ND	15.6	ND	16.3	ND	15.5	ND	15.8	ND	16.
C28-C35 Oil Range Hydrocarbons		ND	15.7	ND	15.6	ND	16.3	ND	15.5	ND	15.8	ND	16.
Total TPH		ND	15.7	ND	15.6	ND	16.3	ND	15.5	ND	15.8	ND	16.

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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Huns Boah

Kelsey Brooks Project Manager



Contact: Curt Stanley **Project Location:** Lea County, NM

Certificate of Analysis Summary 479905

Regency Gas, Monahans, TX

Project Name: 4" Lateral 2/18/13



Date Received in Lab: Mon Feb-24-14 09:10 am

Report Date: 27-FEB-14

roject Location: Lea County, NM													
								ě.		Kelsey Brook	s		
	Lab Id:	479905-0	013	479905-0	14	479905-0	015	479905-0)16	479905-0	017	479905-	018
Analysis Requested	Field Id:	SB-2 @4	40'	SB-3 @	5'	SB-3 @	10'	SB-3 @2	20'	SB-3 @	30	SB-3 @	35'
Anulysis Kequesieu	Depth:	40 ft		5 ft		10 ft		20 ft		30 ft		35 ft	
	Matrix:	SOIL		SOIL		SOIL	,	SOIL		SOIL		SOIL	
	Sampled:	Feb-19-14	12:55	Feb-19-14	13:00	Feb-19-14	13:10	Feb-19-14	13:30	Feb-19-14	13:50	Feb-19-14	14:10
BTEX by EPA 8021B	Extracted:	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00	Feb-25-14	14:00
	Analyzed:	Feb-25-14	23:37	Feb-25-142	23:53	Feb-26-14	00:09	Feb-26-14	00:25	Feb-26-14	00:41	Feb-26-14	00:57
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00121	ND	0.00104	ND	0.00104	ND	0.00104	ND	0.00102	ND	0.00113
Toluene		ND	0.00243	ND	0.00208	ND	0.00208	ND	0.00208	ND	0.00204	ND	0.00225
Ethylbenzene		ND	0.00121	ND	0.00104			ND 0.00104		ND	0.00102	ND	0.00113
m_p-Xylenes		ND	0.00243	ND	0.00208	ND	0.00208	ND	0.00208	ND	0.00204	ND	0.00225
o-Xylene		ND	0.00121	ND	0.00104	ND	0.00104	ND	0.00104	ND	0.00102	ND	0.00113
Total Xylenes		ND	0.00121	ND	0.00104	ND	0.00104	ND	0.00104	ND	0.00102	ND	0.00113
Total BTEX		ND	0.00121	ND	0.00104	ND 0.001		ND	0.00104	ND	0.00102	ND	0.00113
Inorganic Anions by EPA 300/300.1	Extracted:	Feb-25-14	09:00	Feb-25-14 (09:00	Feb-25-14	09:00	Feb-25-14	09:00	Feb-25-14	09:00	Feb-25-14	09:00
	Analyzed:	Feb-25-14	19:04	Feb-25-14	19:26	Feb-25-14	19:49	Feb-25-14	20:57	Feb-25-14	21:19	Feb-25-14	21:42
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		85.6	4.87	25.0	2.09	152	20.9	204	10.4	14.6	2.05	52.6	4.53
Percent Moisture	Extracted:												
	Analyzed:	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34	Feb-25-14	10:34
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		17.8	1.00	4.33	1.00	4.10	1.00	4.28	1.00	2.55	1.00	11.6	1.00
TPH By SW8015 Mod	Extracted:	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00	Feb-24-14	16:00
	Analyzed:	Feb-27-14	09:50	Feb-26-14	18:30	Feb-26-14	18:55	Feb-26-14	19:21	Feb-26-14	19:46	Feb-27-14	10:14
	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	18.2	ND	15.7	ND	15.6	ND	15.7	ND	15.4	ND	16.9
C12-C28 Diesel Range Hydrocarbons		ND	18.2	ND	15.7	ND	15.6	ND	15.7	ND	15.4	ND	16.9
C28-C35 Oil Range Hydrocarbons		ND	18.2	ND	15.7	ND	15.6	ND	15.7	ND	15.4	ND	16.9
Total TPH		ND	18.2	ND	15.7	ND	15.6	ND	15.7	ND	15.4	ND	16.9

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

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Huns Boah

Kelsey Brooks 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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2505 North Falkenburg Rd, Tampa, FL 33619
12600 West I-20 East, Odessa, TX 79765
6017 Financial Drive, Norcross, GA 30071
3725 E. Atlanta Ave, Phoenix, AZ 85040

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(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

Final 1.000



Project Name: 4" Lateral 2/18/13

Lab Batch #:	934876	Sample: 479905-001 / SMP	Bate	ch: 1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 02/25/14 19:56	SU	URROGATE R	ECOVERY S	RY STUDY				
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1,4-Difluoroben	zene		0.0274	0.0300	91	80-120				
4-Bromofluorob	enzene		0.0258	0.0300	86	80-120				
Lab Batch #:	934876	Sample: 479905-002 / SMP	Bate	ch: 1 Matrix	: Soil	·				
Units:	mg/kg	Date Analyzed: 02/25/14 20:12	SU	URROGATE R	ECOVERY S	STUDY				
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1,4-Difluoroben	zene		0.0281	0.0300	94	80-120				
4-Bromofluorob			0.0258	0.0300	86	80-120				
Lab Batch #: 934876 Sample: 479905-003 / SMP			Bate			00 120				
	mg/kg	Date Analyzed: 02/25/14 20:28	SURROGATE RECOVERY STUE							
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1,4-Difluoroben	zene		0.0273	0.0300	91	80-120				
4-Bromofluorob			0.0267	0.0300	89	80-120				
Lab Batch #:	934876	Sample: 479905-004 / SMP	Bate	ch: 1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 02/25/14 20:44	SU	URROGATE R	ECOVERY S	STUDY				
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1.4-Difluoroben	7000	Analytes	0.0274	0.0300		80.120				
4-Bromofluorob			0.0274	0.0300	91	80-120 80-120				
Lab Batch #:		Sample: 479905-005 / SMP	Bate			00-120				
	mg/kg	Date Analyzed: 02/25/14 21:00		URROGATE R		STUDY				
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage				
		Analytes			[D]					
1,4-Difluoroben			0.0275	0.0300	92	80-120				
4-Bromofluorobenzene			0.0262	0.0300	87	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



Project Name: 4" Lateral 2/18/13

	r ders : 47990 #: 934876	5, Sample: 479905-006 / SMP	Batch	Project ID n: 1 Matrix				
Units:	mg/kg	Date Analyzed: 02/25/14 21:16	SU	RROGATE R	ECOVERY S	STUDY		
	ВТЕХ	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluor	obenzene		0.0276	0.0300	92	80-120		
4-Bromoflu	orobenzene		0.0264	0.0300	88	80-120		
Lab Batch	#: 934876	Sample: 479905-007 / SMP	Batch	n: 1 Matrix	: Soil	<u> </u>		
Units:	mg/kg	Date Analyzed: 02/25/14 21:31	SU	RROGATE R	ECOVERY S	STUDY		
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluor	hanzana	Analytes	0.0200	0.0200		00.120		
4-Bromoflu			0.0280	0.0300	93	80-120		
	#: 934876	Sample: 479905-008 / SMP	0.0257 Batch	0.0300 1: 1 Matrix	86 	80-120		
Lab Daten Units:		Date Analyzed: 02/25/14 21:47						
Units:	mg/kg	Duc Maij2cu. 02/25/17 21.77	SURROGATE RECOVERY STUDY					
	ВТЕХ	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluor	obenzene		0.0275	0.0300	92	80-120		
4-Bromoflu			0.0263	0.0300	88	80-120		
Lab Batch	#: 934876	Sample: 479905-009 / SMP	Batch	n: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 02/25/14 22:03	SU	RROGATE R	ECOVERY S	STUDY		
	ВТЕХ	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
4 4 5 10		Analytes						
1,4-Difluor			0.0276	0.0300	92	80-120		
4-Bromoflu		Semple: 470005-010 / SMD	0.0265	0.0300	88 88	80-120		
	#: 934876	Sample: 479905-010 / SMP	Batch					
Units:	mg/kg	Date Analyzed: 02/25/14 22:19	SU	RROGATE R	ECOVERÝ S	STUDY		
	втех	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluor	obenzene		0.0272	0.0300	91	80-120		
·	orobenzene		0.0272	0.0500	71	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



Project Name: 4" Lateral 2/18/13

Work Or Lab Batch	ders : 47990 #: 934876	5, Sample: 479905-011 / SMP	Batcl	Project ID h: 1 Matrix			
Units:	mg/kg	Date Analyzed: 02/25/14 23:06	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluoro	benzene		0.0277	0.0300	92	80-120	
4-Bromoflue	orobenzene		0.0255	0.0300	85	80-120	
Lab Batch	#: 934876	Sample: 479905-012 / SMP	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 02/25/14 23:22	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluoro	benzene	Anarytes	0.0280	0.0200		80.120	
4-Bromoflue			0.0280	0.0300	93	80-120 80-120	
Lab Batch		Sample: 479905-013 / SMP	Batcl			80-120	
Units:	•						
		X by EPA 8021B	Amount Found	True Amount	Recovery	Control Limits	Flags
		Analytes	[A]	[B]	%R [D]	%R	Flags
1,4-Difluoro	obenzene		0.0280	0.0300	93	80-120	
4-Bromoflue	orobenzene		0.0256	0.0300	85	80-120	
Lab Batch	#: 934876	Sample: 479905-014 / SMP	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 02/25/14 23:53	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluoro	obenzene		0.0279	0.0300	93	80-120	
4-Bromoflue	orobenzene		0.0260	0.0300	87	80-120	
Lab Batch	#: 934876	Sample: 479905-015 / SMP	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 02/26/14 00:09	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluoro			0.0275	0.0300	92	80-120	
4-Bromoflue	orobenzene		0.0260	0.0300	87	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



Project Name: 4" Lateral 2/18/13

Work Orde Lab Batch #:		Sample: 479905-016 / SMP	Bate	Project ID					
Units:	mg/kg	Date Analyzed: 02/26/14 00:25	SU	JRROGATE F	RECOVERY	STUDY			
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1,4-Difluoroben	zene		0.0276	0.0300	92	80-120			
4-Bromofluorob	enzene		0.0258	0.0300	86	80-120			
Lab Batch #:	934876	Sample: 479905-017 / SMP	Bate	h: 1 Matrix	c: Soil				
Units:	mg/kg	Date Analyzed: 02/26/14 00:41	SU	JRROGATE F	RECOVERY S	STUDY			
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
140.01		Analytes							
1,4-Difluoroben			0.0278	0.0300	93	80-120			
4-Bromofluorob		Sec. 470005-018 / SMD	0.0263	0.0300	88	80-120			
Lab Batch #:		Sample: 479905-018 / SMP		Batch: 1 Matrix: Soil					
Units:	mg/kg	Date Analyzed: 02/26/14 00:57	SURROGATE RECOVERY STUDY						
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1,4-Difluoroben	zene		0.0278	0.0300	93	80-120			
4-Bromofluorob			0.0265	0.0300	88	80-120			
Lab Batch #:	934993	Sample: 479905-001 / SMP	Bate	h: 1 Matrix	c: Soil				
Units:	mg/kg	Date Analyzed: 02/26/14 10:58	SU	JRROGATE F	RECOVERY S	STUDY			
	TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
		Analytes							
1-Chlorooctane			108	99.7	108	70-135			
o-Terphenyl Lab Batch #:	024002	Complet 470005 002 / SMD	52.4	49.9	105 	70-135			
		Sample: 479905-002 / SMP	Bate						
Units:	mg/kg	Date Analyzed: 02/26/14 12:17	st	JRROGATE F	RECOVERY S	STUDY			
	TPH]	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1-Chlorooctane			75.7	99.6	76	70-135			
o-Terphenyl			36.9	49.8	74	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



Project Name: 4" Lateral 2/18/13

Lab Batch #:	ers: 47990 : 934993	Sample: 479905-003 / SMP	Bate	Project ID				
Units:	mg/kg	Date Analyzed: 02/26/14 12:44	SU	JRROGATE R	RECOVERY	STUDY		
	TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooctan	e		81.8	99.9	82	70-135		
o-Terphenyl			39.0	50.0	78	70-135		
Lab Batch #:	934993	Sample: 479905-004 / SMP	Bato	h: 1 Matrix	: Soil	·		
Units:	mg/kg	Date Analyzed: 02/26/14 13:11	SU	JRROGATE F	RECOVERY	STUDY		
	TPH]	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctan		Analytes	07.4	00.0		70.125		
	le		87.4	99.9	87	70-135		
o-Terphenyl Lab Batch #:	024002	Serverla: 470005-005 / SMD	42.6	50.0 b: 1 Matrix	85 	70-135		
		Sample: 479905-005 / SMP						
Units:	mg/kg	Date Analyzed: 02/26/14 13:37	SURROGATE RECOVERY STUDY					
	TPH]	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooctan	e		88.1	99.8	88	70-135		
o-Terphenyl			42.6	49.9	85	70-135		
Lab Batch #:	934993	Sample: 479905-006 / SMP	Bato	h: 1 Matrix	c: Soil			
Units:	mg/kg	Date Analyzed: 02/26/14 14:05	SURROGATE RECOVERY STUDY					
	TPH]	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooctan	e		82.5	100	83	70-135		
o-Terphenyl	024002		39.8	50.0	80	70-135		
Lab Batch #:		Sample: 479905-007 / SMP	Bato					
Units:	mg/kg	Date Analyzed: 02/26/14 14:34	SU	JRROGATE F	RECOVERY	STUDY		
	TPH]	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage	
		Analytes			[D]			
1-Chlorooctan	e		78.4	99.8	79	70-135		
o-Terphenyl			37.4	49.9	75	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



Project Name: 4" Lateral 2/18/13

Lab Batch #:	934993	Sample: 479905-008 / SMP	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 02/26/14 14:59	st	RROGATE R	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctan	e		83.0	99.9	83	70-135	
o-Terphenyl			39.3	50.0	79	70-135	
Lab Batch #:	934993	Sample: 479905-009 / SMP	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 02/26/14 15:24	SU	RROGATE R	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctan	e	Analytes	97.3	99.6	98	70-135	
o-Terphenyl	~		46.4	49.8	93	70-135	
Lab Batch #:	934993	Sample: 479905-010 / SMP	Batc			70-155	
Units: mg/kg Date Analyzed: 02/26/14 15:49 SURROGATE RECOVERY						STUDV	
			50				
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctan	e		93.9	99.7	94	70-135	
o-Terphenyl			45.6	49.9	91	70-135	
Lab Batch #:	934993	Sample: 479905-011 / SMP	Batc	h: 1 Matrix	: Soil	·	
Units:	mg/kg	Date Analyzed: 02/26/14 17:11	SU	RROGATE R	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1-Chlorooctan	e		79.0	99.7	79	70-135	
o-Terphenyl	00405	~ •	36.3	49.9	73	70-135	
Lab Batch #:		Sample: 479905-014 / SMP	Batc				
Units:	mg/kg	Date Analyzed: 02/26/14 18:30	SU	RROGATE R	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctan	e		88.7	99.9	89	70-135	
o-Terphenyl			40.9	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



Project Name: 4" Lateral 2/18/13

Work Orde Lab Batch #:		S, Sample: 479905-015 / SMP	Batc	Project ID h: 1 Matrix			
Units:	mg/kg	Date Analyzed: 02/26/14 18:55	SU	JRROGATE F	RECOVERYS	STUDY	
	TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctane	;		82.3	99.8	82	70-135	
o-Terphenyl			38.1	49.9	76	70-135	
Lab Batch #:	934993	Sample: 479905-016 / SMP	Batc	h: 1 Matrix	k: Soil		
Units:	mg/kg	Date Analyzed: 02/26/14 19:21	SU	JRROGATE F	RECOVERY	STUDY	
	TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	<u>, </u>		79.0	99.9	79	70-135	
o-Terphenyl			37.5	50.0	75	70-135	
Lab Batch #:	934993	Sample: 479905-017 / SMP	Batc			10 133	
Units:	mg/kg	Date Analyzed: 02/26/14 19:46		JRROGATE F		STUDY	
	TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctane	•		83.5	99.9	84	70-135	
o-Terphenyl			39.2	50.0	78	70-135	
Lab Batch #:	934993	Sample: 479905-012 / SMP	Batc	h: 1 Matrix	k: Soil		
Units:	mg/kg	Date Analyzed: 02/27/14 09:26	SU	JRROGATE F	RECOVERY	STUDY	
	TPH 1	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	;	Tindiy tes	98.5	99.8	99	70-135	
o-Terphenyl			47.7	49.9	96	70-135	
Lab Batch #:	934993	Sample: 479905-013 / SMP	Batc				
Units:	mg/kg	Date Analyzed: 02/27/14 09:50	st	JRROGATE F	RECOVERY	STUDY	
	TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctane	•		95.1	99.6	95	70-135	
o-Terphenyl			47.5	49.8	95	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



Project Name: 4" Lateral 2/18/13

Work Orde Lab Batch #:		Sample: 479905-018 / SMP	Batc	Project ID h: 1 Matrix			
Units:	mg/kg	Date Analyzed: 02/27/14 10:14	SU	RROGATE R	ECOVERY	STUDY	
	TPH	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctane	;		93.2	99.8	93	70-135	
o-Terphenyl			44.1	49.9	88	70-135	
Lab Batch #:	934876	Sample: 651606-1-BLK / BL	K Bate	h: 1 Matrix	: Solid	<u> </u>	
Units:	mg/kg	Date Analyzed: 02/25/14 18:20	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4-Difluorober	nzene	Anarytes	0.0279	0.0300	93	80-120	
4-Bromofluoro			0.0279	0.0300	84	80-120	
Lab Batch #:		Sample: 651498-1-BLK / BL			-	80-120	
	mg/kg	Date Analyzed: 02/26/14 09:42			-		
Ollits.	ing/kg	Date Analyzeu. 02/20/14 07.42	SU	RROGATE R	ECOVERYS	STUDY	
	TPH]	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctane	•		98.7	100	99	70-135	
o-Terphenyl			48.5	50.0	97	70-135	
Lab Batch #:	934876	Sample: 651606-1-BKS / BK	S Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 02/25/14 18:36	SU	RROGATE R	ECOVERYS	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
		Analytes					
1,4-Difluorober			0.0305	0.0300	102	80-120	
4-Bromofluoro			0.0293	0.0300	98	80-120	
Lab Batch #:		Sample: 651498-1-BKS / BK					
Units:	mg/kg	Date Analyzed: 02/26/14 10:07	SU	RROGATE R	ECOVERY S	STUDY	
	TPH	By SW8015 Mod	Amount Found	True Amount	Recovery	Control Limits	Flage
		Analytes	[A]	[B]	%R [D]	%R	
1-Chlorooctane	•		104	100	104	70-135	
o-Terphenyl			58.9	50.0	118	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



Project Name: 4" Lateral 2/18/13

T T *4 ~~ /	#: 934876	Sample: 651606-1-BSD / BS			-		
Units:	mg/kg	Date Analyzed: 02/25/14 18:52	SU	JRROGATE R	ECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1,4-Difluoro	benzene		0.0307	0.0300	102	80-120	
4-Bromoflue	orobenzene		0.0301	0.0300	100	80-120	
Lab Batch	#: 934993	Sample: 651498-1-BSD / BS	SD Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 02/26/14 10:32	SU	JRROGATE R	ECOVERY S	STUDY	
	TPH]	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooct	ane	Anarytes	111	100	111	70-135	
o-Terphenyl			64.0	50.0	128	70-135	
Lab Batch		Sample: 479905-001 S / MS				10155	
Units:	mg/kg	Date Analyzed: 02/25/14 19:08		JRROGATE R		STUDY	
	втех	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes	[**]		[D]		
1,4-Difluoro	benzene		0.0303	0.0300	101	80-120	
4-Bromoflue	orobenzene		0.0301	0.0300	100	80-120	
Lab Batch	#: 934993	Sample: 479905-001 S / MS	Bate	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 02/26/14 11:24	SU	JRROGATE R	ECOVERY	STUDY	
	TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooct	ane		120	99.8	120	70-135	
o-Terphenyl			63.6	49.9	120	70-135	
Lab Batch		Sample: 479905-001 SD / M					
Units:	mg/kg	Date Analyzed: 02/25/14 19:24	st	JRROGATE R	ECOVERY	STUDY	
	втеу	K by EPA 8021B	Amount Found	True Amount	Recovery	Control Limits	Flag
			[A]	[B]	%R	%R	
1,4-Difluorc		Analytes		[B]	%R [D] 102	%R 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



Project Name: 4" Lateral 2/18/13

	rders : 47990 #: 934993	05, Sample: 479905-001 SD / N	MSD Batch	Project ID: 1 Matrix:			
Units:	mg/kg	Date Analyzed: 02/26/14 11:50	SU	RROGATE RH	ECOVERY S	STUDY	
	TPH	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooc	ctane		104	99.8	104	70-135	
o-Terpheny	yl		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



BS / BSD Recoveries



Project Name: 4" Lateral 2/18/13

Work Order #: 479905							Proj	ect ID:			
Analyst: ARM	D	ate Prepai	red: 02/25/201	4			Date A	nalyzed: (02/25/2014		
Lab Batch ID: 934876 Sample: 651606-1-E	SKS	Bate	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	ΟY	
BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result	Blank Spike %R [D]	Spike Added	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[D]	[C]	נען	[E]	Kesuit [r]	[G]				
Benzene	< 0.00100	0.100	0.104	104	0.100	0.105	105	1	70-130	35	
Toluene	< 0.00200	0.100	0.107	107	0.100	0.108	108	1	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.107	107	0.100	0.108	108	1	71-129	35	
m_p-Xylenes	< 0.00200	0.200	0.212	106	0.200	0.214	107	1	70-135	35	
o-Xylene	< 0.00100	0.100	0.108	108	0.100	0.110	110	2	71-133	35	
Analyst: AMB	D	ate Prepai	red: 02/25/201	4	•	·	Date A	nalyzed: ()2/25/2014		
Lab Batch ID: 935041 Sample: 651664-1-E	SKS	Batc	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	ΟY	
Inorganic Anions by EPA 300/300.1 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
Chloride	<2.00	50.0	46.9	94	50.0	47.2	94	1	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



BS / BSD Recoveries



Project Name: 4" Lateral 2/18/13

Work Order	: #: 479905							Proj	ect ID:			
Analyst:	ARM	D	ate Prepar	red: 02/24/201	4			Date A	nalyzed: (02/26/2014		
Lab Batch ID	: 934993 Sample: 651498-1-E	BKS	Bate	h #: 1					Matrix: S	Solid		
Units:	mg/kg		BLAN	K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUI	DY	
	TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analy	ytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
C6-C12 G	Gasoline Range Hydrocarbons	<15.0	1000	907	91	1000	988	99	9	70-135	35	
C12-C28	Diesel Range Hydrocarbons	<15.0	1000	925	93	1000	1040	104	12	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

XENCO Laboratories Projec	Form 3 - MS 2 t Name: 4" Lateral				A BORK	Ort
Work Order #: 479905			Duci	aat ID.		
Lab Batch #: 935041 Date Analyzed: 02/25/2014	Date Prepared: 02/25	5/2014	Ū	ect ID: Analyst: A	MB	
QC- Sample ID: 479905-001 S	Batch #: 1	/2014		Matrix: S		
Reporting Units: mg/kg	MATR	XIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				
Chloride	1190	1050	2380	113	80-120	
Lab Batch #: 935041						
Date Analyzed: 02/25/2014	Date Prepared: 02/25	5/2014	А	analyst: A	MB	
QC- Sample ID: 479905-011 S	Batch #: 1		I	Matrix: S	loil	
Reporting Units: mg/kg	MATR	XIX / MA	TRIX SPIKE	RECO	VERY STU	JDY
Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	268	264	553	108	80-120	

BRL - Below Reporting Limit





Project Name: 4" Lateral 2/18/13



Work Order # : 479905						Project II) :				
Lab Batch ID: 934876	QC- Sample ID:	479905	-001 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed: 02/25/2014	Date Prepared:	02/25/2	014	An	alyst: A	ARM					
Reporting Units: mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERYS	STUDY		
BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]	[-]	[D]	[E]	[-]	[G]		,		
Benzene	< 0.00105	0.105	0.102	97	0.104	0.101	97	1	70-130	35	
Toluene	< 0.00209	0.105	0.105	100	0.104	0.103	99	2	70-130	35	
Ethylbenzene	<0.00105	0.105	0.105	100	0.104	0.103	99	2	71-129	35	
m_p-Xylenes	<0.00209	0.209	0.208	100	0.209	0.204	98	2	70-135	35	
o-Xylene	< 0.00105	0.105	0.105	100	0.104	0.104	100	1	71-133	35	
Lab Batch ID: 934993	QC- Sample ID:	479905	-001 S	Ba	tch #:	1 Matrix	s: Soil				
Date Analyzed: 02/26/2014	Date Prepared:	02/24/2	014	An	alyst: A	ARM					
Reporting Units: mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]		[D]	[E]		[G]				
C6-C12 Gasoline Range Hydrocarbons	<15.7	1050	1020	97	1050	949	90	7	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.7	1050	1060	101	1050	1010	96	5	70-135	35	1

Matrix Spike Percent Recovery $[D] = 100^{*}(C-A)/B$ Relative Percent Difference RPD = $200^{*}|(C-F)/(C+F)|$ Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E





Project Name: 4" Lateral 2/18/13

Work Order #: 479905

Lab Batch #: 934733			Project I	D:	
Date Analyzed: 02/25/2014 10:34 Date Prep	ared: 02/25/2014	4 Anal	yst:WRU		
QC- Sample ID: 479816-004 D Ba	tch #: 1	Mat	rix: Soil		
Reporting Units: %	SAMPLE	/ SAMPLE]	DUPLIC	ATE RECO	OVERY
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	2.65	2.70	2	20	
Lab Batch #: 934733					
	ared: 02/25/2014	4 Anal	lyst:WRU		
Date Analyzed: 02/25/2014 10:34 Date Prep	ared: 02/25/2014 tch #: 1		l yst: WRU rix: Soil		
Date Analyzed: 02/25/2014 10:34 Date Prep	tch #: 1		rix: Soil	ATE REC	OVERY
Date Analyzed: 02/25/2014 10:34 Date Prep QC- Sample ID: 479905-010 D Ba	tch #: 1	Mat	rix: Soil	ATE RECO Control Limits %RPD	OVERY Flag

Spike Relative Difference RPD 200 * | (B-A)/(B+A) | All Results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit

Project Manager: Curt Stanley Company Name Nova Safety and Environmental Company Address: 2057 Commerce City/State/Zip: Midland, TX 79703 Telephone No: 52,520.7720 Sampler Signature: St.520.7720 ORDER #: 479905 ORDER #: 479905 B # (lab use only) FIELD CODE B Beginning Depth Beginning Depth	Beginning Depth Ending Depth		1020 Time Sampled	Field Filtered	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	× Ice Stal. calloway@regen cstanley@novatrain HNO3 HCI HCI HQ H2SO4 NaOH NaOH NaQH	HNO ₃ HNO ₃ HCI HCI HSO			NaOH @regencygas.cc Na2S2O3 None Other (Specify) .cc	Na ₂ S ₂ O ₃ On En atra	None	Other (Specify)	DW=Drinking Water SL=Sludge	Solution Solut	So GW = Groundwater S=Soil/Solid Matrix Project Nam NP=Non-Potable Specify Other Project Nam X X TPH: 418.1 8015M 8015B Project Nam Project Nam Project Nam	NP=Non-Potable Specify Other X Off Project Project Project Name X X TPH: 418.1 8015M 8015B Project Name Project Name Project Name Name Project Name Project Name Project Name Project Name Name Name Name Project Name N	X X 1Pri. 416.1 8015M 8015B 0	Cations (Ca, Mg, Na, K)	Anions (CL SQ4 Alkalinity)		Metals: As An Ba Cd Cr Ph Hn Se	SAR / ESP / CEC A Metals: As Ag Ba Cd Cr Pb Hg Se Analyze Volatiles Analyze	Voldines			RCI RCI RRP TRRP VICE TRRP	N.O.R.M. R. 12/11	× × Chloride E300			RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	× × Standard TAT
			Time Sampled		Total #. of Containers		HNO ₃	HCI	H ₂ SO ₄	NaOH	$Na_2S_2O_3$	None	Other (Specify)	DW=Drinking Water SL=Sludge	GW = Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	TPH: 418.1 (8015M) 8	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb H					RCI	N.O.R.M.	Chloride E300	6		RUSH TAT (Pre-Schedule) 24	
SB-1 @ 10'		-	1010			×									Soi		×		1				+ +	+	-	+ +			×				
SB-1 @ 20'		2/19/2014	1030			×				-			1.1		Soil		\times	1.4								×>			×>				××
SB-1 @ 25'		2/19/2014	1045			×									Soil		\times									×			×				×
SB-1 @ 30' SB-1 @ 35'		2/19/2014	1100			××	_								Soil		$\times \times$							-		< ×	_		$\times \times$				×
SB-2 @ 10'		2/19/2014	1155		-	×					1				Soil		\times							-		×			××				× >
SB-2 @ 15' SB-2 @ 20'		2/19/2014 2/19/2014	1205 1215			××		1		1.1		21 1 1 2	ta (mi		Soil	5.023	$\times \times$	EILE				1.1.1.1.1				××			××				< ×
SB-2 @ 25'		2/19/2014	1225		-	×				1					Soil		\times	1	lei						-	×			×				×
al Instructions: Bill to Re															- 34			1	Sar	nple Cs F	Co	of	Laboratory Comments: Sample Containers Intac VOCs Free of Headspac	ner s In	Laboratory Comments: Sample Containers Intact? VOCs Free of Headspace?	5.5				< ¥ [zz	
te Mary	1/14/1/35	Received by:	httes	Sic	6	7						N	-2/	Date .2./-/4		1	Time 135		Cus	els tod	on on y se	als	on	er(s con	Labels on container(s) Custody seals on container Custody seals on cooler(s)	Labels on container(s) Custody seals on container(s) Custody seals on cooler(s)	()			X XX		× 東本	641
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Project Manager: Camille Bryant															1		-	roj	ect	Nar	ne:		1				-	le	ge	no	<					Nova Safety and Environmental Pojett #: 12807 Commerce Fax No: 42.500.700 Spetto:
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Company Address: 2057 Commerce																		D	nie	÷ i	S						1 2	5 2	2	1	5	c			C.	Midland, TX 79703 Fax No: 42, 520, 7701 Fax No: Commat: Seminary Burger Format: Seminary Burger Format: </td
City/State/Zip: Midland, TX 79703															1			3									Ę			чу,	VIV					Age 2007 Part No: Age 2007 Fax No:
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LAB # (lab uso FIELD CODD	Beginning De	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Contain	Ice	HNO ₃	HCI	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	2000						sault an uners.	ations (Ca, Mg, N	nions (CI, SO4, A	AR / ESP / CEC	letals: As Ag Ba C	olatiles	emivolatiles			CI	.O.R.M.	haci	ALIN' IC		USH TAT IDen OF	tandard TAT	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
SB-2 @ 30'			2/19/2014	1235		-	×	_						+			≝ [-	-	-		1	S	Ν	V	S	-	-	R	N	< 1	-	+	R	-	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
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SB-2 @ 40'			2/19/2014	1255			×				6.5				-	S	≌	-		-	-	_			T			-+			×		-	+	< >	5' 2/19/2014 1300 1 x
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SB-3 @ 10'			2/19/2014	1310		-	×	_	1							S	≚	×	-	-	-	-			T	1	1				×	1	+	+	< >	@ 20' 2/19/2014 1330 1 x Soil X x
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SB-3 @ 30'			2/19/2014	1350			×									S	oil	×		-	-	_					×		-		×			+	×	@ 35' 2/19/2014 1410 1 x Soil X X X X
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														C	10			ä	ā	H	dui	era	ure	Up	on	Reg	ceip	t,			51	n	1.	°		Temperature Upon Receipt: 5°C .°C

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XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: Regency Gas	Acceptable Temperature Range: 0 - 6 de	aC
Date/ Time Received: 02/24/2014 09:10:00 AM	Air and Metal samples Acceptable Range	
Work Order #: 479905	Temperature Measuring device used :	
Sample Rece	ipt Checklist Comments	
#1 *Temperature of cooler(s)?		
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	N/A	
#5 Custody Seals intact on sample bottles?	N/A	
#6 *Custody Seals Signed and dated?	N/A	
#7 *Chain of Custody present?	Yes	
#8 Sample instructions complete on Chain of Custody?	Yes	
#9 Any missing/extra samples?	Νο	
#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)? N/A	
#21 <2 for all samples preserved with HNO3,HCL, H2SO4?	N/A	
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnA	Ac+NaOH? N/A	

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

Analyst:

PH Device/Lot#:

Date: 02/24/2014

Checklist completed by: Muy Moah Kelsey Brooks Checklist reviewed by: Muy Moah Kelsey Brooks

Date: 02/24/2014



Photographic Documentation

Client: ETC Field Services, LLC Project Name: 4-Inch Lateral (2/18/13) **Prepared by:** TRC Environmental Corp. **Location:** Lea County, NM





Photographic Documentation

Client: ETC Field Services, LLC Prepared by: TRC Environmental Corp. Location: Lea County, NM Project Name: 4-Inch Lateral (2/18/13) Photograph No. 3 Date: March 20, 2013 **Description:** Looking east Excavation activities in progress. Photograph No. 4 Date: March 27, 2013 **Description:** Looking south Delineation trench advancing to south.

Soil	Boring	Loa	SB-1
001	Domig	LOG	

Depth	Soil				Soil Boring Deta	<u>ails</u>
(feet)	Columns	Odor	Chloride Field Screen	Soil Description		
<u> </u>	00101110			_	Date Drilled	2-18-14
_					Depth of Exploratory Well	35 ft
L					Depth to Water	N/A
-				 0 - 4' - Brown silty fine grained sand. well rounded well sorted. 		
-						
-	100 BC					
- 5'		None	1264	4 - 8' - White, fine to very fine grained sand, with		
F				caliche. well rounded and moderately sorted.		
F						
F						
-		News	00.4			
_ 10'		None	884			
	an a			8 - 16' - Reddish tan fine to very fine grained sand.		
L				sub-angular to sub-rounded and moderately		
F				sorted.		
- 15		None	1264			
-						
F			1	6 - 19.5' - Red hard fine grained sandstone layer with		
F				red medium to fine sand.		
-	26969628					
20'		None	1100	9.5 - 23' - Light tan fine grained sand with gravel.		
E				Sub-rounded to well rounded and poorly		
L				sorted.		
F					Completion Not	tes
- 25'	a standard a Standard a standard a st Standard a standard a st	None	536		1. Soil boring was plug	aged same day.
-				23 - 28' - Red hard fine grained sandstone layer with red	Using Air Rotary dri	lling Technique.
-				medium to fine sand. Clear quartz pebbles.	2. 8 bags of Bentonite	and 1 bag of Cement.
F					-	-
					3. 2' Concrete seal at	top.
- 30'		None	<112	28 - 35' - Red Silty course grained sand with heavy		
E				gravel. Angular to sub-rounded and poorly		
L				sorted. Some clay content.		
F						
L 35'	TD	None	<112			
	10					

Soil Boring Log Details SB - 1 ETC Field Services, LLC 4 Inch Lateral 2/18/13 Lea County, NM Scale: NTS CAD By: TA Checked By: CS Draft: March 14,2014



Soil Boring Log SB-2

Soil Boring Details Depth Soil Soil Description (feet) Columns Odor Chloride Field Screen 2-19-14 Date Drilled 40 ft Depth of Exploratory Well_ 0 - 2' - Brown silty fine grained sand. Well rounded N/A Depth to Water _ well sorted. 2 - 5.5' - White, fine to very fine grained sand. With caliche.Well rounded and well sorted. 2536 5' None 5.5 - 12' - Tan fine to very fine grained sand. Well rounded and moderately sorted. 10' None 2536 12 - 18' - Red hard fine grained sandstone layer with red 15' None 1552 medium to fine sand. Sub-rounded moderately sorted. 18 - 21' - Tan fine grained sand with some gravel. Well rounded and moderately sorted. 20' None 756 21 - 24' - Red hard fine grained sandstone layer with red medium to fine sand. Clear quartz pebbles. 25' None 536 24 - 32' - Reddish tan, silty coarse grained sand with **Completion Notes** heavy gravel. Angular to sub-rounded and poorly sorted. Some clay content. 1. Soil boring was plugged same day. Using Air Rotary drilling Technique. 30' None 164 2. 8 bags of Bentonite and 1 bag of Cement. 32 - 35' - Red fine grained sand well-rounded well 3. 2' Concrete seal at top. sorted. High clay content. 35' None 284 35 - 40' - Red sandy platy clay. Very little sand content, fine to very fine, well-rounded well sorted. 40' None No Reading TD Scale: NTS Soil Boring Log Details CAD By: TA SB - 2 Checked By: CS ETC Field Services, LLC Draft: March 14.2014 4 Inch Lateral 2/18/13 2057 Commerce Drive Lea County, NM

Midland, Texas 79703 432.520.7720

Soil Boring Log SB-3

epth	Soil				Soil Boring Deta	ils
feet)	Columns	Odor	Chloride Field Screen	Soil Description		
<u> </u>					Date Drilled	2-19-14
	_				Depth of Exploratory Well	35 ft
					Depth to Water	N/A
_				0 - 2' - Brown silty fine grained sand. well rounded		
_				well sorted. Some caliche nodules.		
-						
— 5'		None	<112			
Г				2 - 11' - Tan, fine to very fine grained sand, well rounded and sorted.		
Г				rounded and soned.		
Г						
-			101	11 12 Ded hard fine grained conditions love with the		
- 10'		None	164	11 - 12' - Red hard fine grained sandstone layer with tan medium to fine sand. Sub-rounded moderately		
-	State of the state			sorted.		
-						
-				12 - 14' - Tan medium to fine sand with some red hard		
-				fine grained sandstone. Sub rounded		
— 15'		None	136	moderately sorted.		
-				14 - 18' - Tan fine grained sand interbeded with soft white calcareous sandstone. Sub-angular to		
-				sub-rounded and poorly sorted.		
-						
-	a stan finanza da sera da sera En separate da sera da			18 - 22' - Red hard fine grained sandstone layer with tan		
- 20'		None	164	medium to fine sand. Clear quartz pebbles.		
-	a <u>dan an</u> 12 de dan an a					
-						
_	846666666 8466666666 84666666666				Completion Not	es
- 25'		None	<112	22 - 33' - Reddish tan, silty medium to fine graine sand	1. Soil boring was plug Using Air Rotary dril	iged same day.
Г				with heavy gravel. Angular to sub-rounded and poorly sorted. Some clay content	÷ .	
Γ				poony solice. Come day content	2. 8 bags of Bentonite	and 1 bag of Cement
Γ						
					2' Concrete seal at t	op.
— 30'		None	<112			
[
Ľ						
				33 - 35' - Red fine grained sand. well rounded well		
L _{35'}		Nezz	No Deedler	sorted. High clay content.		
- აა	TD	None	No Reading	<u> </u>		

Soil Boring Log Details SB - 3 ETC Field Services, LLC 4 Inch Lateral 2/18/13 Lea County, NM Scale: NTS CAD By: TA Checked By: CS Draft: March 14,2014



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		HOBBS OC FEB 2 6 2 RECEIVE	Form C-141 Revised October 10, 2003 Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back			
			Rel	ease Notifi	catio	on and Co	orrective A	ction	
						OPERA	TOR	🖂 In	itial Report 🔲 Final Repo
Name of C	ompany	Southern	Union Ga	s Services		Contact Cu			
Address	2012			nahans, TX 79	756		No. 575-390-75		
Facility Na	ime	4 Inch La	ateral (2/1	8/13)		Facility Typ	be Natural Gas	Pipeline	
Surface Ov	wner Woo	lworth Trus	t					Leas	No. 30-025-38822
				LOC		NOEDE	TRA OT		
Unit Letter	Section	Township	Range	Feet from the		h/South Line	Feet from the	Dental In	10
F	17	25S	37E	reet nom me	NON	ivsouth Line	reet from the	East/West Lin	e County Eddy
	1.2.1							A T- 77-	2009
Type of Release Natural Gas, Crude Oil and Produced Water Source of Release 4 inch Natural Gas Pipeline Was Immediate Notice Given? Immediate Notice Given? Yes No Not Require				equired				d Hour of Discovery y 18, 2013 – 1108 hours	
By Whom? Was a Water	Curt Stanle	y abod 9					lour February 1		ours
was a water	course Rea		Yes 🛛	No		IT YES, VO	lume Impacting t	he Watercourse.	
A four (4)-in	ich low pres	em and Reme sure steel nat ipeline was cl	ural gas pir	beline developed	a leak, se. The	resulting in a r affected steel p	elease of natural a ipeline will be cu	gas, crude oil and it and capped and	produced water. During initial permanently taken out of
A four (4)-in response act service. Describe Are An irregular scraped from remediated to I hereby cert regulations a public health should their or the enviro	ach low pres ivities the pi ea Affected area measur the ground o NMOCD ify that the i ill operators or the envito operations h nment. In a	and Cleanup ring approxim and stockpile regulatory Sta information g are required to ronment. The pave failed to	ural gas pin amped to r Action Tak nately 60 fe ed on 6 mil andards. iven above to report an e acceptance adequately OCD accep	cen,* et in width and 2 plastic. The satu is true and comp d/or file certain r e of a C-141 repo investigate and r	00 feet rated s lete to elease ort by t emedia	in length was bil was transpo the best of my notifications ar he NMOCD m te contaminati	impacted by the re impacted by the re rted to Sundance knowledge and u id perform correc arked as "Final Ro on that pose a thr	tt and capped and clease. On Febru Services on Febru nderstand that put tive actions for r eport" does not r at to ground wa	ary 18, 2013, saturated soil was
A four (4)-in response act service. Describe Are An irregular scraped from remediated to I hereby cert regulations a public health should their or the enviro	ach low pres ivities the pi area Affected area measur the ground o NMOCD : ify that the i ill operators or the envi- operations h nment. In a por-local-law	and Cleanup. ring approxim and stockpile regulatory Sta information g are required to ronment. The tave failed to iddition, NMC ws-and/or-regu	ural gas pin amped to r Action Tak nately 60 fe ed on 6 mil andards. iven above to report an e acceptance adequately OCD accep	cen,* tet in width and 2 plastic. The satu is true and comp d/or file certain r te of a C-141 repo investigate and r	00 feet rated s lete to elease ort by t emedia	affected steel p in length was bil was transpo the best of my notifications an ne NMOCD mi te contaminati does not reliev	impacted by the re impacted by the re rted to Sundance knowledge and u id perform correc arked as "Final Ro on that pose a thr	tt and capped and elease. On Febru Services on Febru nderstand that put tive actions for r eport" does not r pat to ground wa esponsibility for SERVATION	ary 18, 2013, saturated soil was uary 22, 2013. The release will be rsuant to NMOCD rules and eleases which may endanger elieve the operator of liability er surface water human health
A four (4)-in response acti service. Describe Are An irregular scraped from remediated to I hereby cert regulations a public health should their or the enviro federal,-state Signature: Printed Name	ach low pres ivities the pi ea Affected area measur the ground o NMOCD ify that the i all operators or the envi- operations h nment. In a por-local-law e: Curt Star	and Cleanup . ring approxim and stockpile regulatory Sta information g are required to ronment. The ave failed to addition, NMC ws-and/or regulatory and stockpile regulatory Sta	ural gas pin amped to r Action Tak nately 60 fe ed on 6 mil andards. iven above to report an e acceptance adequately OCD accep	cen,* tet in width and 2 plastic. The satu is true and comp d/or file certain r te of a C-141 repo investigate and r	00 feet rated s lete to elease ort by t emedia	affected steel p in length was bil was transpo the best of my notifications an ne NMOCD mi te contaminati does not reliev	impacted by the re- impacted by the re- rected to Sundance knowledge and un id perform correct arked as "Final Re- on that pose a three the operator of re- <u>OIL CONS</u> Environmental Sp	tt and capped and elease. On Febru Services on Febru nderstand that put tive actions for r eport" does not r pat to ground wa esponsibility for SERVATION	ary 18, 2013, saturated soil was uary 22, 2013. The release will be rsuant to NMOCD rules and eleases which may endanger elieve the operator of liability er, surface water, human health compliance with any other
A four (4)-in response acti service. Describe Are An irregular scraped from remediated to I hereby cert regulations a public health should their or the enviro federal,-state Signature: Printed Name Title: Enviro	ach low pres ivities the pi ea Affected area measur the ground o NMOCD : ify that the i ll operators or the envir operations h nment. In a por-local-law core curt Star nmental Spe ess: curt.star	and Cleanup. ring approxim and stockpile regulatory Sta information g are required to ronment. The ave failed to iddition, NMC ws-and/or-regulatory and stockpile ronment. The ave failed to ronment. The ave failed to rond the start of the store of the s	ural gas pin amped to r Action Tak hately 60 fe ed on 6 mil andards. iven above to report an e acceptance adequately DCD accep ulations.	cen,* tet in width and 2 plastic. The satu is true and comp d/or file certain r te of a C-141 repo investigate and r	e. The 00 feet rated s elease ort by t emedia report	affected steel p in length was bil was transpo the best of my notifications an he NMOCD mi te contamination does not reliev Approved by Approval Dat Conditions of	impacted by the re- impacted by the re- rected to Sundance knowledge and un id perform correct arked as "Final Re- on that pose a three the operator of re- <u>OIL CONS</u> Environmental Sp	tt and capped and elease. On Febru Services on Febru nderstand that put tive actions for r eport" does not r eat to ground wa esponsibility for SERVATION SERVATION DECIMIENT Environme	ary 18, 2013, saturated soil was uary 22, 2013. The release will be rsuant to NMOCD rules and eleases which may endanger elieve the operator of liability ter, surface water, human health compliance with any other NDIVISION