Kegan W. Boyer, P.G.
Project Manager

Upstream Business Unit
Environmental Management Company
1400 Smith Street
Room 07076
Houston, Texas 77002
Tel 713-372-7705
kegan.boyer@chevron.com

June 10, 2015

Dr. Tomáš Oberding
Hydrologist, Adv-District 1
Environmental Bureau
New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

Re: Site Closure Documentation
West Vacuum Unit #49 (RP #3312)

Dr. Oberding,

Chevron Environmental Management Company (CEMC) is pleased to submit the following report documenting assessment activities at the Lovington San Andres Unit #22 (RP #1477) project site:

- *West Vacuum Unit #49 Flow Line Release,*
  Soil Assessment and Delineation Activities Report
  Unit N, Section 34, Township 17S, Range 34E,
  Lea County, New Mexico
  RP #3312
  (Final Form C-141 also included with report)

This report was prepared by Conestoga-Rovers & Associates (CRA) on behalf of CEMC to document activities performed for CEMC at the above-referenced project site. For your convenience, this report has been uploaded to the Oil Conservation Division (OCD) Secure FTP Server within the 'Chevron' folder. CEMC is providing this report only as an electronic version; however, a hard copy can be provided at the OCD's request.

Based on the results of assessment activities conducted at this project site indicating that no residual impacts are present at levels of regulatory concern, CEMC believes that no additional activities are necessary at this site and respectfully requests that the NMOCD grant a no further action status to the site.

Should you have any questions regarding the content of the report or the activities completed at the site, please do not hesitate to contact me by phone at 713-372-7705 or via e-mail at kegan.boyer@chevron.com.

Sincerely,

Kegan W. Boyer, P.G.
Environmental Project Manager

encl: *Soil Assessment and Delineation Activities Report*

cc: Jake Ferenz, CRA

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company Chevron (CEMC)	Contact Kegan Boyer
Address 1400 Smith Street, Houston Texas, 77002	Telephone No. (713) 372-7705
Facility Name West Vacuum Unit 49	Facility Type Poly flowline

Surface Owner	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	34	17S	34E		North		West	Lea

NATURE OF RELEASE

Type of Release Oil and Produced Water	Volume of Release 0.07 bbl oil and 9 bbl water	Volume Recovered
Source of Release Poly flow line	Date and Hour of Occurrence 03/25/2011 - 06:00 AM	Date and Hour of Discovery 03/25/2011 - 12:00 PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mr. Leking via e-mail from Kim Klahsen	
By Whom? Kim Klahsen	Date and Hour 06/04/07 and 1:30 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
A seam on a poly flow line failed resulting in a release of 0.07 bbls of oil and 9 bbls of produced water.

Describe Area Affected and Cleanup Action Taken.*
Shut in and call for repair of line.

Two surface soil samples were collected within the affected area. Sampling results indicated the presence of chloride and hydrocarbon concentrations in shallow soils at levels of regulatory concern. In response, an additional soil assessment was conducted to confirm the presence/extent of the soil impacts.

Results of the additional assessment activities are provided in the attached report.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Kegan Boyer	Approved by Environmental Specialist: Bradford Billings	
Title: Project Manager	Approval Date: 12/2/2019	Expiration Date:
E-mail Address: Kegan.boyer@chevron.com	Conditions of Approval:	Attached ☐
Date: 6/10/15 Phone: (713) 372-7705		

* Attach Additional Sheets If Necessary

Original

CONESTOGA-ROVERS & ASSOCIATES

www.CRAworld.com

Final Report

WEST VACUUM UNIT #49 FLOW LINE RELEASE SOIL ASSESSMENT AND DELINEATION ACTIVITIES REPORT

Unit N, Section 34, Township 17 South, Range 34 East
Lea County, New Mexico
RP #3312

Prepared for: Chevron Environmental Management Company

Conestoga-Rovers & Associates
2135 South Loop, 250 West
Midland, Texas 79703

September 2014 • 075867 • Report No. 1

Partners in Sustainability

Table of Contents

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(Following Text)

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(Following Text)

Section 1.0 Introduction

Conestoga-Rovers and Associates (CRA) is pleased to present this Soil Assessment and Delineation Activities Report to Chevron Environmental Management Company (CEMC) for the West Vacuum Unit #49 Flow Line Release location (hereafter referred to as the "Site").

Section 2.0 Project Information and Background

The Site is located in Unit N, Section 34, Township 17 South, Range 34 East, approximately 3 miles southwest of Buckeye, New Mexico, in eastern Lea County (Figure 1 and Figure 2).

CRA understands that Chevron conducted initial field assessment activities at the Site in April 2011. Chevron's assessment included a site visit, soil sample collection, analytical laboratory analyses and preliminary determinations of impacts to environmental media.

In April 2011, Marcos Silvestri (AECOM) propositioned CRA to develop a scope of work and cost estimate regarding delineation and closure efforts for the Site. CRA prepared and submitted a scope of work and cost estimate for the Site to AECOM as part of a multiple site proposal for the Buckeye-Vacuum FMT area in June of 2011. Subsequently the proposed activities were not executed. In November of 2013, CEMC (Kegan Boyer) requested that CRA prepare a new scope of work and cost estimate for delineation and closure activities at the Site.

On July 14, 2014, CRA mobilized to the Site to perform a site visit. During the site visit, proposed hand auger boring locations were marked, and New Mexico one-call parameters were flagged for utility locating purposes. In addition, the Site was walked to observe site features and identify the West Vacuum Unit #49 flow line in proximity to Chevron's initial soil sample (A and B) collections. A photo log documenting site details and walk-through activities is included as Appendix B.

2.1 West Vacuum Unit #49 Flow Line Release

Chevron submitted a C-141 Form to the New Mexico Oil Conservation Division (NMOCD), District I, Hobbs, New Mexico office dated April 7, 2011. The NMOCD assigned a Remediation Permit No. 3312 (RP # 3312) to the release in September of 2014. The C-141 described a release of 0.07 barrels (bbls) of oil and 9 bbls of produced water, of which 0 bbls of fluids were recovered. The source of the release was reported to have been due to a failed seam on the poly flow line. Chevron shut-in the line and made arrangements to repair the damaged flow line.

In April of 2011, Chevron collected two surficial soil samples from within the spill path (Figure 3). These two soil samples were submitted to Cardinal Laboratories, Hobbs, New Mexico for determination of benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021 B, total petroleum hydrocarbons (TPH) by Method 8015 (GRO + DRO) and chlorides by EPA Method SM4500Cl-B.

The following results were reported (mg/kg):

Sample	Benzene	BTEX	TPH-DRO	TPH-GRO	Chlorides
CVU-49-A	<0.050	<0.150	18.6	<10.0	20,000
CVU-49-B	<0.050	4.168	22,300	384	14,400

2.2 Recommended Remediation Action Levels

Information available on the Petroleum Recovery Research Center (PRRC) Mapping Portal, and United States Geological Survey (USGS) Current Water Database for the Nation, the depth to groundwater at the Site is greater than 100-feet bgs; the nearest private domestic water source is greater than 200-feet from the release site; the nearest public/municipal water source is greater than 1,000-feet from the release site; and the release site lies more than 1,000 horizontal feet from the nearest surface water body. Consequently, the NMOCD total ranking criteria score is zero (0) for the Site. The anticipated site-specific Recommended Remediation Action Levels (RRALs; per 2011 Draft Guidance) to be applied to this location by the NMOCD for TPH (GRO+DRO) at the Site is 500 mg/kg and 1,000 mg/kg for chlorides.

New Mexico Oil Conservation Division Site Assessment	
Ranking Criteria	Score
Depth to Ground Water (>100 feet)	0
Wellhead Protection Area (> 1000 feet from water source, > 200 feet from domestic source)	0
Distance to Surface Body Water (>1000 horizontal feet)	0
Ranking Criteria Total Score	**0***
*Because the ranking criteria total score is 0, NMOCD established RRALs are 50 mg/kg for benzene, toluene, ethylbenzene, and xylene (BTEX), 500 mg/kg TPH (GRO + DRO), and 1,000 mg/kg for chlorides[1].	

[1] NMOCD Draft Guidance for Release Reporting and Corrective Action, September 30, 2011

Section 3.0 Sample Collection

On July 22, 2014, CRA submitted an initial New Mexico One Call utility locate ticket (2014300706) pertaining to the installation of five hand auger soil borings under RP #3312. CRA submitted an MCBU Chevron Dig Plan with appropriate attachments for approval to the Chevron Buckeye Field Management Team. On July 31, 2014 CRA mobilized to the Site to begin soil sampling activities. All soil samples were collected by hand auger techniques. Five soil borings were advanced across the Site to a depth of 3-feet bgs. The location of the soil borings is presented on the Site Details and Analytical Results Map (Figure 3).

Soil samples were collected for laboratory analysis from each boring (SB-1, SB-2, SB-3, SB-4 and SB-5) at 1-foot intervals beginning at 0-feet bgs. Soil samples were packed into laboratory prepared jars and stored in a cooler with ice. The soil samples were sent to Xenco Laboratories (Xenco) in Odessa, Texas for analysis of BTEX by EPA Method 8021B; TPH by EPA Method SW 8015 Modified and for chloride analysis by EPA Method 300/300.1. Soil laboratory analytical results are summarized in Table 1. The Soil Laboratory Analytical Report is included as Appendix C. A Site Details and Analytical Results Map is presented as Figure 3.

3.1 Soil Sampling Analytical Results

All soil samples collected (SB-1, SB-2, SB-3, SB-4 and SB-5) from the Site in 2014 for laboratory analyses were below laboratory reporting limits and below Site RRALs for BTEX (50 mg/kg). In addition, all soil samples collected from the Site in 2014 for laboratory analyses were below the Site RRALs for TPH (GRO + DRO) (500 mg/kg), and chlorides (1,000 mg/kg).

Section 4.0 Conclusions

Analytical results of the surficial soil samples collected immediately following the release in 2011 indicated chloride and TPH concentrations in soil above the Site RRALs; however, evaluation of the analytical data obtained from soil assessment and delineation activities performed in July of 2014 has indicated that vertical and horizontal delineation of BTEX, TPH (GRO + DRO), and chloride impacts have been achieved. Based on data provided in this report, no further delineation or remedial efforts are warranted. CRA recommends closure of the release associated with RP # 3312.

If you have any questions or comments with regard to this Soil Assessment and Delineation Activities Report, please do not hesitate to contact our Midland office at (432) 686-0086. Your timely response to this correspondence is appreciated.

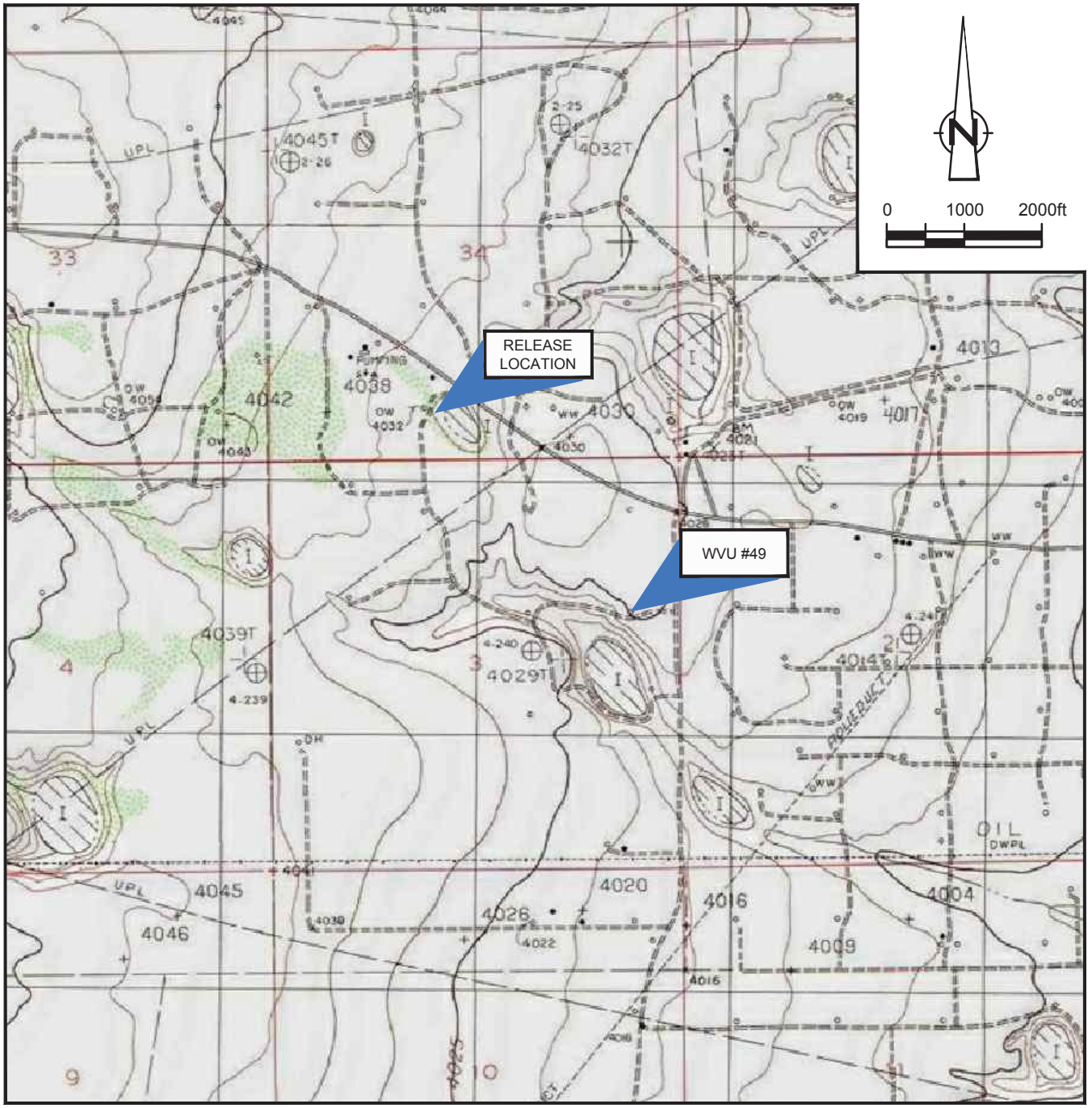
All of Which is Respectfully Submitted,

CONESTOGA ROVERS & ASSOCIATES

Thomas C. Larson
Principal, Midland Operations Manager

Jake L. Ferenz
Project Manager

Figures



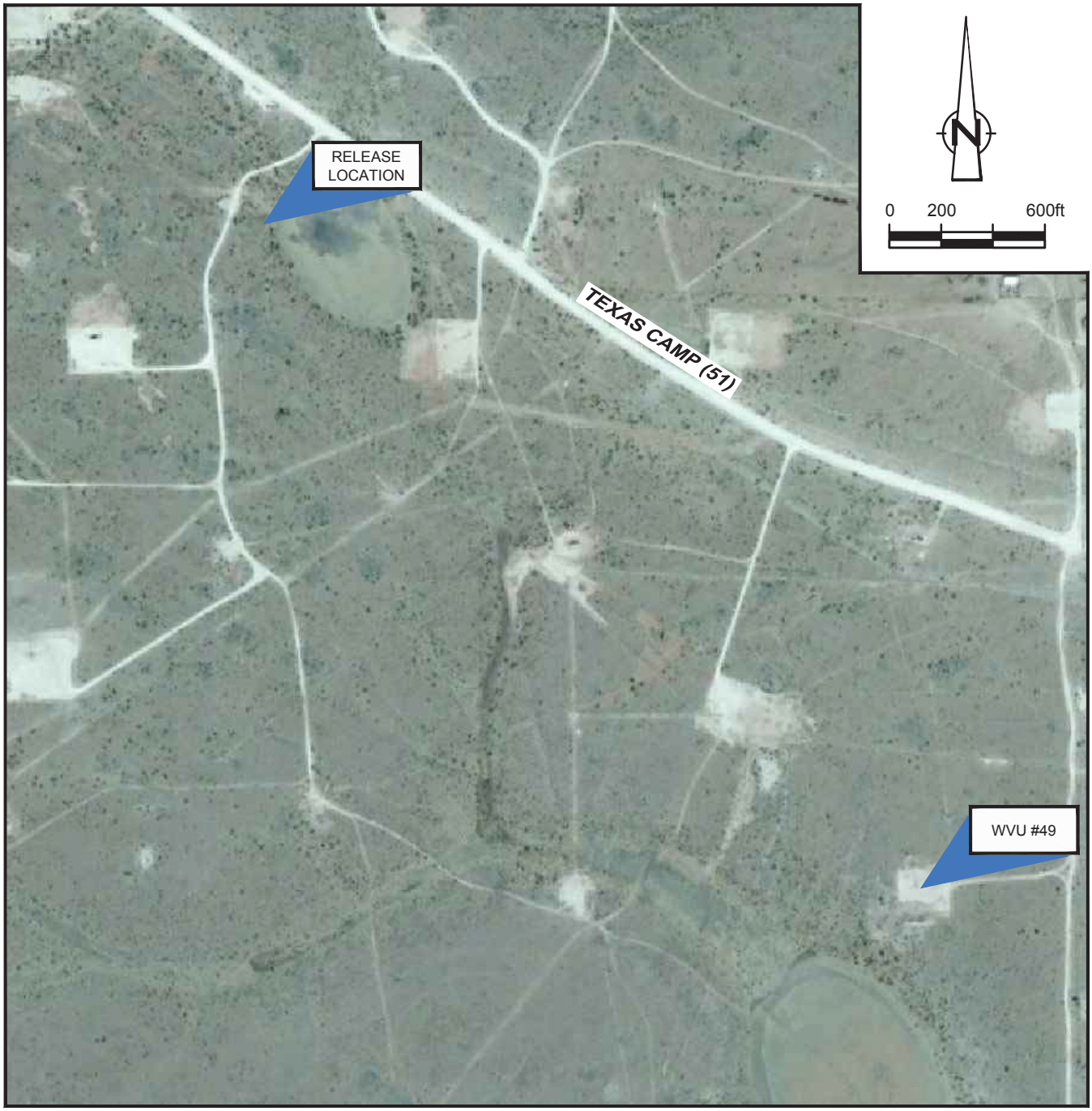
SOURCE: USGS 7.5 MINUTE QUAD
"BUCKEYE, NEW MEXICO"

LAT/LONG: 32.7857° NORTH, 103.5500° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

figure 1

SITE LOCATION MAP
WEST VACUUM UNIT #49 FLOW LINE RELEASE
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

075867-00(001)GN-DL001 SEP 2/2014



LAT/LONG: 32.7857° NORTH, 103.5500° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

figure 2

SITE AERIAL MAP
WEST VACUUM UNIT #49 FLOW LINE RELEASE
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

CRA

075867-00(001)GN-DL001 SEP 2/2014

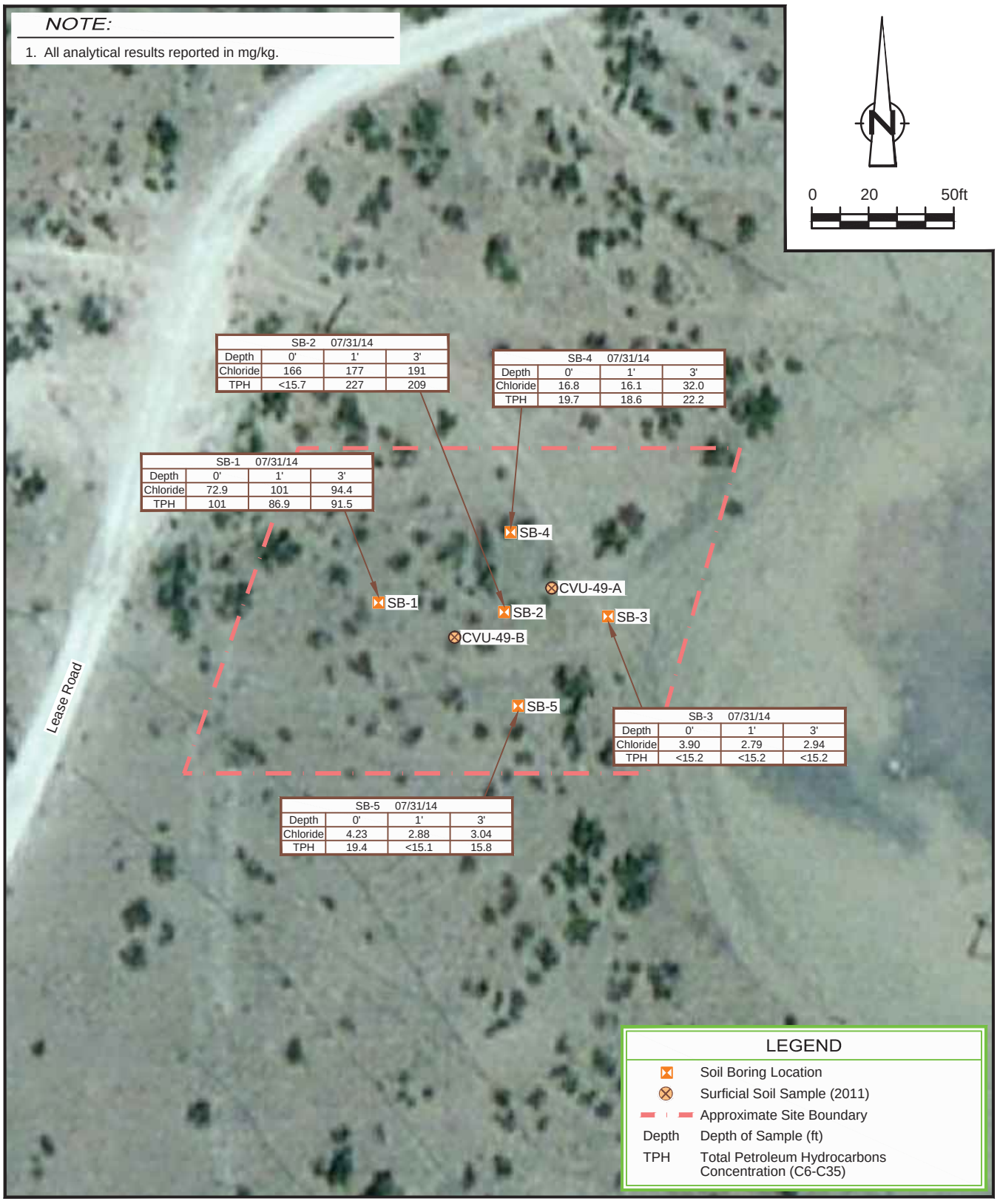


figure 3

SITE DETAILS AND ANALYTICAL RESULTS MAP
WEST LOVINGTON UNIT #49 FLOW LINE RELEASE
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

Tables

TABLE 1
SOIL ANALYTICAL SUMMARY
WEST VACUUM UNIT #49 - FLOW LINE RELEASE
LEA COUNTY, NEW MEXICO

Sample ID	Depth (bgs)	Sample Date	Benzene	Toluene	Ethyl-Benzene	Xylenes	Total BTEX	TPH (SW 8015 Modified)						Chlorides
								C6-C10	>C10-C28	C6-C12	C12-C28	C28-C35	Total TPH C6-C35	
NMOCD Recommended Remediation Action Levels			0.2	---	---	---	50	500	500	500	500	---	1,000	250
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
CVU-49-A	Surface	4/5/11	<0.050	<0.050	<0.050	<0.150	--	<10.0	18.6	--	--	--	--	20000
CVU-49-B	Surface	4/5/11	<0.050	0.258	1.24	2.67	--	384	22300	--	--	--	--	14400
SB-1	0'	7/31/14	<0.00101	<0.00203	<0.00101	<0.00101	<0.00101	--	--	<15.2	73.8	26.9	101	72.9
SB-1	1'	7/31/14	<0.00103	<0.00206	<0.00103	<0.00103	<0.00103	--	--	<15.5	69.6	17.3	86.9	101
SB-1	3'	7/31/14	<0.00103	<0.00205	<0.00103	<0.00103	<0.00103	--	--	<15.4	71.9	19.6	91.5	94.4
SB-2	0'	7/31/14	<0.00104	<0.00208	<0.00104	<0.00104	<0.00104	--	--	<15.7	<15.7	<15.7	<15.7	166
SB-2	1'	7/31/14	<0.00104	<0.00209	<0.00104	<0.00104	<0.00104	--	--	<15.6	176	50.6	227	177
SB-2	3'	7/31/14	<0.00104	<0.00208	<0.00104	<0.00104	<0.00104	--	--	<15.6	167	42.2	209	191
SB-3	0'	7/31/14	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	--	--	<15.2	<15.2	<15.2	<15.2	3.90
SB-3	1'	7/31/14	<0.00101	<0.00201	<0.00101	<0.00101	<0.00101	--	--	<15.2	<15.2	<15.2	<15.2	2.79
SB-3	3'	7/31/14	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	--	--	<15.2	<15.2	<15.2	<15.2	2.94
SB-4	0'	7/31/14	<0.00101	<0.00201	<0.00101	<0.00101	<0.00101	--	--	<15.2	19.7	<15.2	19.7	16.8
SB-4	1'	7/31/14	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	--	--	<15.1	18.6	<15.1	18.6	16.1
SB-4	3'	7/31/14	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	--	--	<15.1	22.2	<15.1	22.2	32.0
SB-5	0'	7/31/14	<0.00105	<0.00210	<0.00105	<0.00105	<0.00105	--	--	<15.8	19.4	<15.8	19.4	4.23
SB-5	1'	7/31/14	<0.00100	<0.00200	<0.00100	<0.00100	<0.00100	--	--	<15.1	<15.1	<15.1	<15.1	2.88
SB-5	3'	7/31/14	<0.00100	<0.00200	<0.00100	<0.00100	<0.00100	--	--	<15.1	15.8	<15.1	15.8	3.04

Notes:

1. All analytical results reported in (mg/kg) milligrams per kilogram
2. 2011 Chloride analyses by Method EPA SM4500Cl-B; 2014 Chloride analyses by Method EPA 300/300.1
3. BTEX analysis by Method EPA 8021 B
4. TPH analysis by Method SW 8015 Modified
5. Highlighted cells indicate concentrations exceeding guidance RRALs
6. RRALs from NMOCD (September 2011 Draft) Release Guidance Document
7. bgs - below ground surface
8. < indicates below laboratory Reporting Limit (RL)
9. (SB) indicates Soil Borings
10. "--" indicates not analyzed

Appendices

Appendix A

Original C-141 Form

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised March 17, 1999

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

Release Notification and Corrective Action

OPERATOR

Initial Report X Final Report

Name of Company CHEVRON	Contact Kim Klahsen
Address 56 Texas Camp Road, Lovington NM 88260	Telephone No.Office: 432-894-3298 Cellular:
Facility Name: WVU 49 poly line	Facility Type: Poly Flow line

Surface Owner:	Mineral Owner	Lease No.

LOCATION OF RELEASE-API # 30-025-32450 is nearest well.

Longitude: degrees minutes seconds Lattitude: degrees minutes seconds

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	34	17.0S	34 E		North		West	Lea

NATURE OF RELEASE

Type of Release Oil and produced water	Volume of Release 0.07 BO and 9 BW	Volume Recovered0
Source of Release : Poly flow line	Date and Hour of Occurrence March 25, 2011 @ approx 06 AM	Date and Hour of DiscoveryMarch 25, 2011 noon.
Was Immediate Notice Given? x Yes ☐ No Not Required	If YES, To Whom? Mr. Leking via E- mail from Kim Klahsen	
By Whom? /Kim Klahsen		
Was a Watercourse Reached? ☐ Yes x No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*A seam on a poly flow line failed resulting in a release of0.07 Barrels of oil and 9 barrels of produced water.

Describe Area Affected and Cleanup Action Taken.*Shut in and called in for repair of line.

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

Signature:	OIL CONSERVATION DIVISION Approved byDistrict Supervisor:	
Printed Name: Kim Klahsen		
Title: Safety Specialist	Approval Date:	Expiration Date:
Date: April 7, 2011, 2011 Phone: 432-894-3298	Conditions of Approval:	Attached ☐

* Attach Additional Sheets If Necessary

Appendix B

Photograph Log

PHOTO 1: View of nearest well pad and soil sampling area in the background facing east

PHOTO 2: View of current WVU #49 Poly Flow Line in proximity to initial sample locations A & B

PHOTOGRAPH LOG
West Vacuum Unit #49 Flow Line Leak
Lea County, New Mexico
Chevron Environmental Management Company

PHOTO 3: View of potentially repaired/replaced Poly Flow Line facing north

PHOTO 4: View of sampling area including proposed boring location (center) and New Mexico one-call parameters (white) flagged

PHOTOGRAPH LOG
West Vacuum Unit #49 Flow Line Leak
Lea County, New Mexico
Chevron Environmental Management Company

Appendix C

Soil Laboratory Analytical Report

Analytical Report 490609

for

Conestoga Rovers & Associates

Project Manager: Jacob Ferenz

WVU #49

075867

12-AUG-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)
Texas (T104704477), 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)

12-AUG-14

Project Manager: **Jacob Ferenz**
Conestoga Rovers & Associates
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **490609**
WVU #49
Project Address: Lea County,NM

Jacob Ferenz:

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) 490609. 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. 490609 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,

Kelsey Brooks
Project Manager

Sample Cross Reference 490609

Conestoga Rovers & Associates, Midland, TX

WVU #49

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
075867-SB-1	S	07-31-14 14:15	- 0 ft	490609-001
075867-SB-1	S	07-31-14 14:18	- 1 ft	490609-002
075867-SB-1	S	07-31-14 14:21	- 3 ft	490609-003
075867-SB-2	S	07-31-14 14:22	- 0 ft	490609-004
075867-SB-2	S	07-31-14 14:25	- 1 ft	490609-005
075867-SB-2	S	07-31-14 14:28	- 3 ft	490609-006
075867-SB-3	S	07-31-14 14:29	- 0 ft	490609-007
075867-SB-3	S	07-31-14 14:32	- 1 ft	490609-008
075867-SB-3	S	07-31-14 14:35	- 3 ft	490609-009
075867-SB-4	S	07-31-14 14:40	- 0 ft	490609-010
075867-SB-4	S	07-31-14 14:43	- 1 ft	490609-011
075867-SB-4	S	07-31-14 14:46	- 3 ft	490609-012
075867-SB-5	S	07-31-14 14:50	- 0 ft	490609-013
075867-SB-5	S	07-31-14 14:53	- 1 ft	490609-014
075867-SB-5	S	07-31-14 14:55	- 3 ft	490609-015

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 490609

Conestoga Rovers & Associates, Midland, TX

Project Name: WVU #49

Project Id: 075867
Contact: Jacob Ferenz
Project Location: Lea County,NM

Date Received in Lab: Fri Aug-01-14 11:20 am
Report Date: 12-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	490609-001		490609-002		490609-003		490609-004		490609-005		490609-006	
	Field Id:	075867-SB-1		075867-SB-1		075867-SB-1		075867-SB-2		075867-SB-2		075867-SB-2	
	Depth:	0 ft		1 ft		3 ft		0 ft		1 ft		3 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-31-14 14:15		Jul-31-14 14:18		Jul-31-14 14:21		Jul-31-14 14:22		Jul-31-14 14:25		Jul-31-14 14:28	
BTEX by EPA 8021B	Extracted:	Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00	
	Analyzed:	Aug-10-14 02:38		Aug-10-14 02:07		Aug-10-14 02:55		Aug-09-14 23:56		Aug-10-14 03:11		Aug-10-14 03:27	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00101	ND	0.00103	ND	0.00103	ND	0.00104	ND	0.00104	ND	0.00104
Toluene		ND	0.00203	ND	0.00206	ND	0.00205	ND	0.00208	ND	0.00209	ND	0.00208
Ethylbenzene		ND	0.00101	ND	0.00103	ND	0.00103	ND	0.00104	ND	0.00104	ND	0.00104
m,p-Xylenes		ND	0.00203	ND	0.00206	ND	0.00205	ND	0.00208	ND	0.00209	ND	0.00208
o-Xylene		ND	0.00101	ND	0.00103	ND	0.00103	ND	0.00104	ND	0.00104	ND	0.00104
Total Xylenes		ND	0.00101	ND	0.00103	ND	0.00103	ND	0.00104	ND	0.00104	ND	0.00104
Total BTEX		ND	0.00101	ND	0.00103	ND	0.00103	ND	0.00104	ND	0.00104	ND	0.00104
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-08-14 17:00		Aug-08-14 17:00		Aug-08-14 17:00		Aug-08-14 18:00		Aug-08-14 18:00		Aug-08-14 18:00	
	Analyzed:	Aug-09-14 04:11		Aug-09-14 04:34		Aug-09-14 04:57		Aug-09-14 07:12		Aug-09-14 07:58		Aug-09-14 08:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		72.9	20.4	101	20.7	94.4	20.6	166	105	177	104	191	104
Percent Moisture	Extracted:												
	Analyzed:	Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		1.73	1.00	3.27	1.00	2.84	1.00	4.52	1.00	4.11	1.00	4.25	1.00
TPH By SW8015 Mod	Extracted:	Aug-09-14 12:00		Aug-09-14 12:00		Aug-09-14 12:00		Aug-09-14 12:00		Aug-09-14 12:00		Aug-09-14 12:00	
	Analyzed:	Aug-10-14 00:52		Aug-10-14 01:15		Aug-10-14 01:38		Aug-10-14 02:27		Aug-10-14 02:53		Aug-10-14 03:18	
	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	15.2	ND	15.5	ND	15.4	ND	15.7	ND	15.6	ND	15.6
C12-C28 Diesel Range Hydrocarbons		73.8	15.2	69.6	15.5	71.9	15.4	ND	15.7	176	15.6	167	15.6
C28-C35 Oil Range Hydrocarbons		26.9	15.2	17.3	15.5	19.6	15.4	ND	15.7	50.6	15.6	42.2	15.6
Total TPH		101	15.2	86.9	15.5	91.5	15.4	ND	15.7	227	15.6	209	15.6

Certificate of Analysis Summary 490609

Conestoga Rovers & Associates, Midland, TX

Project Name: WVU #49

Project Id: 075867
Contact: Jacob Ferenz
Project Location: Lea County,NM

Date Received in Lab: Fri Aug-01-14 11:20 am
Report Date: 12-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	490609-007		490609-008		490609-009		490609-010		490609-011		490609-012	
	Field Id:	075867-SB-3		075867-SB-3		075867-SB-3		075867-SB-4		075867-SB-4		075867-SB-4	
	Depth:	0 ft		1 ft		3 ft		0 ft		1 ft		3 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-31-14 14:29		Jul-31-14 14:32		Jul-31-14 14:35		Jul-31-14 14:40		Jul-31-14 14:43		Jul-31-14 14:46	
BTEX by EPA 8021B	Extracted:	Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00	
	Analyzed:	Aug-10-14 02:23		Aug-10-14 00:12		Aug-10-14 00:29		Aug-10-14 03:43		Aug-10-14 03:59		Aug-10-14 04:16	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101
Toluene		ND	0.00202	ND	0.00201	ND	0.00202	ND	0.00201	ND	0.00202	ND	0.00202
Ethylbenzene		ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101
m,p-Xylenes		ND	0.00202	ND	0.00201	ND	0.00202	ND	0.00201	ND	0.00202	ND	0.00202
o-Xylene		ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101
Total Xylenes		ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101
Total BTEX		ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101	ND	0.00101
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-08-14 18:00		Aug-08-14 18:00		Aug-08-14 18:00		Aug-08-14 18:00		Aug-08-14 18:00		Aug-08-14 18:00	
	Analyzed:	Aug-09-14 08:43		Aug-09-14 09:06		Aug-09-14 09:28		Aug-09-14 10:36		Aug-09-14 10:59		Aug-09-14 11:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		3.90	2.03	2.79	2.03	2.94	2.03	16.8	10.1	16.1	10.1	32.0	20.2
Percent Moisture	Extracted:												
	Analyzed:	Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		1.53	1.00	1.24	1.00	1.25	1.00	1.38	1.00	1.32	1.00	1.19	1.00
TPH By SW8015 Mod	Extracted:	Aug-09-14 12:00		Aug-08-14 18:00		Aug-08-14 18:00		Aug-09-14 12:00		Aug-09-14 12:00		Aug-09-14 12:00	
	Analyzed:	Aug-10-14 03:42		Aug-09-14 06:48		Aug-09-14 07:12		Aug-10-14 04:06		Aug-10-14 04:30		Aug-10-14 04:53	
	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	15.2	ND	15.2	ND	15.2	ND	15.2	ND	15.1	ND	15.1
C12-C28 Diesel Range Hydrocarbons		ND	15.2	ND	15.2	ND	15.2	19.7	15.2	18.6	15.1	22.2	15.1
C28-C35 Oil Range Hydrocarbons		ND	15.2	ND	15.2	ND	15.2	ND	15.2	ND	15.1	ND	15.1
Total TPH		ND	15.2	ND	15.2	ND	15.2	19.7	15.2	18.6	15.1	22.2	15.1

Certificate of Analysis Summary 490609

Conestoga Rovers & Associates, Midland, TX

Project Name: WVU #49

Project Id: 075867
Contact: Jacob Ferenz
Project Location: Lea County,NM

Date Received in Lab: Fri Aug-01-14 11:20 am
Report Date: 12-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	490609-013		490609-014		490609-015							
	Field Id:	075867-SB-5		075867-SB-5		075867-SB-5							
	Depth:	0 ft		1 ft		3 ft							
	Matrix:	SOIL		SOIL		SOIL							
	Sampled:	Jul-31-14 14:50		Jul-31-14 14:53		Jul-31-14 14:55							
BTEX by EPA 8021B	***Extracted:***	Aug-09-14 11:00		Aug-09-14 11:00		Aug-09-14 11:00							
	Analyzed:	Aug-10-14 00:45		Aug-10-14 01:01		Aug-10-14 01:18							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Benzene		ND	0.00105	ND	0.00100	ND	0.00100						
Toluene		ND	0.00210	ND	0.00200	ND	0.00200						
Ethylbenzene		ND	0.00105	ND	0.00100	ND	0.00100						
m,p-Xylenes		ND	0.00210	ND	0.00200	ND	0.00200						
o-Xylene		ND	0.00105	ND	0.00100	ND	0.00100						
Total Xylenes		ND	0.00105	ND	0.00100	ND	0.00100						
Total BTEX		ND	0.00105	ND	0.00100	ND	0.00100						
Inorganic Anions by EPA 300/300.1	***Extracted:***	Aug-08-14 18:00		Aug-08-14 18:00		Aug-08-14 18:00							
	Analyzed:	Aug-09-14 11:44		Aug-09-14 12:07		Aug-09-14 12:52							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Chloride		4.23	2.11	2.88	2.01	3.04	2.01						
Percent Moisture	***Extracted:***												
	Analyzed:	Aug-07-14 00:00		Aug-07-14 00:00		Aug-07-14 00:00							
	Units/RL:	%	RL	%	RL	%	RL						
Percent Moisture		5.39	1.00	ND	1.00	ND	1.00						
TPH By SW8015 Mod	***Extracted:***	Aug-09-14 12:00		Aug-09-14 12:00		Aug-09-14 12:00							
	Analyzed:	Aug-10-14 05:18		Aug-10-14 05:44		Aug-10-14 06:10							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL						
C6-C12 Gasoline Range Hydrocarbons		ND	15.8	ND	15.1	ND	15.1						
C12-C28 Diesel Range Hydrocarbons		19.4	15.8	ND	15.1	15.8	15.1						
C28-C35 Oil Range Hydrocarbons		ND	15.8	ND	15.1	ND	15.1						
Total TPH		19.4	15.8	ND	15.1	15.8	15.1						

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

Form 2 - Surrogate Recoveries

Project Name: WVU #49

Work Orders : 490609,

Project ID: 075867

Lab Batch #: 947831 **Sample:** 490609-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 06:48

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.7	99.8	92	70-135	
o-Terphenyl	49.6	49.9	99	70-135	

Lab Batch #: 947831 **Sample:** 490609-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 07:12

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.2	99.8	87	70-135	
o-Terphenyl	48.8	49.9	98	70-135	

Lab Batch #: 947896 **Sample:** 490609-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 23:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 947896 **Sample:** 490609-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 00:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0290	0.0300	97	80-120	

Lab Batch #: 947896 **Sample:** 490609-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 00:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WVU #49

Work Orders : 490609,

Project ID: 075867

Lab Batch #: 947896 **Sample:** 490609-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 00:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 947884 **Sample:** 490609-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 00:52

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.7	99.6	85	70-135	
o-Terphenyl	44.1	49.8	89	70-135	

Lab Batch #: 947896 **Sample:** 490609-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 01:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

Lab Batch #: 947884 **Sample:** 490609-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 01:15

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.0	99.7	88	70-135	
o-Terphenyl	48.3	49.9	97	70-135	

Lab Batch #: 947896 **Sample:** 490609-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 01:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0281	0.0300	94	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: WVU #49

Work Orders : 490609,

Project ID: 075867

Lab Batch #: 947884 **Sample:** 490609-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 01:38

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.4	99.9	90	70-135	
o-Terphenyl	49.4	50.0	99	70-135	

Lab Batch #: 947896 **Sample:** 490609-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 02:07

SURROGATE RECOVERY STUDY

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

Lab Batch #: 947896 **Sample:** 490609-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 02:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0290	0.0300	97	80-120	

Lab Batch #: 947884 **Sample:** 490609-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 02:27

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.0	99.7	85	70-135	
o-Terphenyl	47.0	49.9	94	70-135	

Lab Batch #: 947896 **Sample:** 490609-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 02:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0296	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

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WVU #49

Work Orders : 490609, **Project ID:** 075867

Lab Batch #: 947884 **Sample:** 490609-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 02:53

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.9	99.8	100	70-135	
o-Terphenyl	55.5	49.9	111	70-135	

Lab Batch #: 947896 **Sample:** 490609-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 02:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0292	0.0300	97	80-120	

Lab Batch #: 947896 **Sample:** 490609-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 03:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0290	0.0300	97	80-120	

Lab Batch #: 947884 **Sample:** 490609-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 03:18

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.7	99.8	96	70-135	
o-Terphenyl	52.6	49.9	105	70-135	

Lab Batch #: 947896 **Sample:** 490609-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 03:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: WVU #49

Work Orders : 490609,

Project ID: 075867

Lab Batch #: 947884 **Sample:** 490609-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 03:42

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.4	100	95	70-135	
o-Terphenyl	51.5	50.0	103	70-135	

Lab Batch #: 947896 **Sample:** 490609-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 03:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

Lab Batch #: 947896 **Sample:** 490609-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 03:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 947884 **Sample:** 490609-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 04:06

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.5	99.8	85	70-135	
o-Terphenyl	45.2	49.9	91	70-135	

Lab Batch #: 947896 **Sample:** 490609-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 04:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	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: WVU #49

Work Orders : 490609,

Project ID: 075867

Lab Batch #: 947884 **Sample:** 490609-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 04:30

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.8	99.6	86	70-135	
o-Terphenyl	46.1	49.8	93	70-135	

Lab Batch #: 947884 **Sample:** 490609-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 04:53

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.5	99.6	90	70-135	
o-Terphenyl	47.8	49.8	96	70-135	

Lab Batch #: 947884 **Sample:** 490609-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 05:18

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.7	99.7	89	70-135	
o-Terphenyl	48.4	49.9	97	70-135	

Lab Batch #: 947884 **Sample:** 490609-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 05:44

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.5	99.9	88	70-135	
o-Terphenyl	46.5	50.0	93	70-135	

Lab Batch #: 947884 **Sample:** 490609-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/10/14 06:10

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.7	99.9	90	70-135	
o-Terphenyl	43.8	50.0	88	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WVU #49

Work Orders : 490609, **Project ID:** 075867

Lab Batch #: 947831 **Sample:** 659774-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/08/14 20:58

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.3	100	87	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 947884 **Sample:** 659809-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/09/14 20:01

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.8	100	89	70-135	
o-Terphenyl	47.9	50.0	96	70-135	

Lab Batch #: 947896 **Sample:** 659827-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/09/14 21:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0278	0.0300	93	80-120	

Lab Batch #: 947831 **Sample:** 659774-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/08/14 21:21

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	100	104	70-135	
o-Terphenyl	60.6	50.0	121	70-135	

Lab Batch #: 947884 **Sample:** 659809-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/09/14 20:26

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	100	102	70-135	
o-Terphenyl	59.3	50.0	119	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WVU #49

Work Orders : 490609, **Project ID:** 075867

Lab Batch #: 947896 **Sample:** 659827-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/09/14 21:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

Lab Batch #: 947831 **Sample:** 659774-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/08/14 21:45

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	60.3	50.0	121	70-135	

Lab Batch #: 947884 **Sample:** 659809-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/09/14 20:50

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	60.2	50.0	120	70-135	

Lab Batch #: 947896 **Sample:** 659827-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/09/14 21:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 947831 **Sample:** 490605-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 03:28

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.8	102	70-135	
o-Terphenyl	59.6	49.9	119	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WVU #49

Work Orders : 490609, **Project ID:** 075867

Lab Batch #: 947884 **Sample:** 490539-021 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 21:38

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	100	109	70-135	
o-Terphenyl	64.1	50.0	128	70-135	

Lab Batch #: 947896 **Sample:** 490539-026 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 22:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 947831 **Sample:** 490605-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 03:53

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.7	102	70-135	
o-Terphenyl	58.4	49.9	117	70-135	

Lab Batch #: 947884 **Sample:** 490539-021 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 22:02

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.4	99.9	99	70-135	
o-Terphenyl	58.6	50.0	117	70-135	

Lab Batch #: 947896 **Sample:** 490539-026 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/09/14 22:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	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

Surrogate Recovery [D] = 100 * A / B

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

BS / BSD Recoveries

Project Name: WVU #49

Work Order #: 490609 **Project ID:** 075867

Analyst: ARM **Date Prepared:** 08/09/2014 **Date Analyzed:** 08/09/2014

Lab Batch ID: 947896 **Sample:** 659827-1-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
Benzene	<0.00100	0.100	0.105	105	0.100	0.0976	98	7	70-130	35	
Toluene	<0.00200	0.100	0.107	107	0.100	0.100	100	7	70-130	35	
Ethylbenzene	<0.00100	0.100	0.108	108	0.100	0.101	101	7	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.217	109	0.200	0.204	102	6	70-135	35	
o-Xylene	<0.00100	0.100	0.104	104	0.100	0.100	100	4	71-133	35	

Analyst: JUM **Date Prepared:** 08/08/2014 **Date Analyzed:** 08/08/2014

Lab Batch ID: 947830 **Sample:** 659712-1-BKS **Batch #:** 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	47.1	94	50.0	46.1	92	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

Version: 1.%

BS / BSD Recoveries

Project Name: WVU #49

Work Order #: 490609 **Project ID:** 075867

Analyst: JUM **Date Prepared:** 08/08/2014 **Date Analyzed:** 08/09/2014

Lab Batch ID: 947832 **Sample:** 659713-1-BKS **Batch #:** 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	46.7	93	50.0	45.3	91	3	80-120	20	

Analyst: ARM **Date Prepared:** 08/08/2014 **Date Analyzed:** 08/08/2014

Lab Batch ID: 947831 **Sample:** 659774-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	884	88	1000	968	97	9	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1070	107	1000	1110	111	4	70-135	35	

Analyst: ARM **Date Prepared:** 08/09/2014 **Date Analyzed:** 08/09/2014

Lab Batch ID: 947884 **Sample:** 659809-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<15.0	1000	932	93	1000	903	90	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1050	105	1000	1100	110	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

Version: 1.%

Form 3 - MS Recoveries

Project Name: WVU #49

Work Order #: 490609

Lab Batch #: 947830 **Project ID:** 075867

Date Analyzed: 08/08/2014 **Date Prepared:** 08/08/2014 **Analyst:** JUM

QC- Sample ID: 490539-011 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	1170	2550	3790	103	80-120	

Lab Batch #: 947830

Date Analyzed: 08/09/2014 **Date Prepared:** 08/08/2014 **Analyst:** JUM

QC- Sample ID: 490539-021 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	3.93	47.3	46.1	89	80-120	

Lab Batch #: 947832

Date Analyzed: 08/09/2014 **Date Prepared:** 08/08/2014 **Analyst:** JUM

QC- Sample ID: 490609-004 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	166	2620	2520	90	80-120	

Lab Batch #: 947832

Date Analyzed: 08/09/2014 **Date Prepared:** 08/08/2014 **Analyst:** JUM

QC- Sample ID: 490609-014 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	2.88	40.3	38.3	88	80-120	

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

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: WVU #49

Work Order # : 490609 **Project ID:** 075867

Lab Batch ID: 947896 **QC- Sample ID:** 490539-026 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/09/2014 **Date Prepared:** 08/09/2014 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00120	0.120	0.102	85	0.120	0.104	87	2	70-130	35	
Toluene	<0.00241	0.120	0.105	88	0.120	0.106	88	1	70-130	35	
Ethylbenzene	<0.00120	0.120	0.106	88	0.120	0.107	89	1	71-129	35	
m,p-Xylenes	<0.00241	0.241	0.213	88	0.240	0.214	89	0	70-135	35	
o-Xylene	<0.00120	0.120	0.104	87	0.120	0.104	87	0	71-133	35	

Lab Batch ID: 947831 **QC- Sample ID:** 490605-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/09/2014 **Date Prepared:** 08/08/2014 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<16.0	1070	930	87	1060	899	85	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<16.0	1070	1180	110	1060	1140	108	3	70-135	35	

Lab Batch ID: 947884 **QC- Sample ID:** 490539-021 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/09/2014 **Date Prepared:** 08/09/2014 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Gasoline Range Hydrocarbons	<17.7	1180	1100	93	1180	966	82	13	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<17.7	1180	1390	118	1180	1310	111	6	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 Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: WVU #49

Work Order #: 490609

Lab Batch #: 947499 **Project ID:** 075867

Date Analyzed: 08/07/2014 00:00 **Date Prepared:** 08/07/2014 **Analyst:** WRU

QC- Sample ID: 490539-027 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	30.4	29.8	2	20	

Lab Batch #: 947499

Date Analyzed: 08/07/2014 00:00 **Date Prepared:** 08/07/2014 **Analyst:** WRU

QC- Sample ID: 490609-009 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	1.25	1.14	9	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

Version: 1.%

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Odessa, Texas (432-563-1800)
Norcross, Georgia (770-449-8800)
Lakeland, Florida (863-646-8526)
Tampa, Florida (813-620-2000)

Xenco Quote #:
Xenco Job #: 490609

Client / Reporting Information

Company Name / Branch: CRA
Company Address: 2135 S Loop 250 W MID TX 79703
Email: jfuenz@craworld.com
Phone No: 512 622 8043
Project Contact: John Fuenz
Samplers's Name: Jake Ferenz

Project Information

Project Name/Number: WVU #49 | 075867
Project Location: LEA County, NM
Invoice To:
PO Number:

Matrix Codes

A= Air
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
WW= Waste Water
W = Wipe
O = Oil
WW= Waste Water

No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	BTEX	TPH (GRO + DRO)	Chlorides	Field Comments
1	075867 - SB-1	0'	8/1/14 (7/31/14)	2:15 pm	S	1								X	X	X	X	
2	075867 - SB-1	1'	7/31/14	2:18	↓	↓								↓	↓	↓	↓	
3	075867 - SB-1	3'	↓	2:21	↓	↓								↓	↓	↓	↓	
4	075867 - SB-2	0'	↓	2:22	↓	↓								↓	↓	↓	↓	
5	075867 - SB-2	1'	↓	2:25	↓	↓								↓	↓	↓	↓	
6	075867 - SB-2	3'	↓	2:28	↓	↓								↓	↓	↓	↓	
7	075867 - SB-3	0'	↓	2:29	↓	↓								↓	↓	↓	↓	
8	075867 - SB-3	1'	↓	2:32	↓	↓								↓	↓	↓	↓	
9	075867 - SB-3	3'	↓	2:35	↓	↓								↓	↓	↓	↓	
10	075867 - SB-4	0'	↓	2:40	↓	↓								↓	↓	↓	↓	

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [x] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 3:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by	Date Time	Received By		Relinquished By	Date Time	Received By
1	Relinquished by Sampler: [signature]	08/01/14 11:20	1 [signature]	2	Relinquished By:	8/1/14 1120	2 Received By:
3	Relinquished by:	Date Time:	3 Received By:	4	Relinquished By:	Date Time:	4 Received By:
5	Relinquished by:	Date Time:	5 Received By:		Custody Seal #	Preserved where applicable: [ ]	On Ice: X; Cooler Temp.:; Thermo. Corr. Factor: 6.0

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.

XENCO LABORATORIES

Setting the Standard since 1990

CHAIN OF CUSTODY

Page 2 Of 2

Stafford, Texas (281-240-4200)
Dallas, Texas (214-902-0300)
Service Center - San Antonio, Texas (210-509-3334)

www.xenco.com

Odessa, Texas (432-563-1800)
Norcross, Georgia (770-449-8800)
Lakeland, Florida (863-646-8526)
Tampa, Florida (813-620-2000)

Xenco Quote #:
Xenco Job #: 490609

Client / Reporting Information		Project Information	
Company Name / Branch:	CRA	Project Name/Number:	WVU#49/075867
Company Address:	2135 S Loop 250 W Midland TX 79703	Project Location:	LEA County, NM
Email:	[illegible]@craworld.com	Invoice To:	
Phone No:	572 822-5043		
Project Contact:	JAKE Ferentz	PO Number:	
Samplers's Name:	Jake Ferentz		

Analytical Information: BTEX; TPH (GRO + DRO); Chlorides

Collection and number of preserved bottles

No.	Field ID / Point of Collection	Sample Depth	Date	Time (PM)	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	BTEX	TPH (GRO +DRO)	Chlorides	Field Comments
1	075867-SB-4	1'	7/31/14	2:43	S	1								X	X	X	X	
2	075867-SB-4	3'	↓	2:46	↓	↓								↓	↓	↓	↓	
3	075867-SB-5	0'	↓	2:50	↓	↓								↓	↓	↓	↓	
4	075867-SB-5	1'	↓	2:53	↓	↓								↓	↓	↓	↓	
5	075867-SB-5	3'	↓	2:55	↓	↓								↓	↓	↓	↓	
6																		
7																		
8																		
9																		
10																		

Matrix Codes
A= Air
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
WW= Waste Water
W = Wipe
O = Oil

WW= Waste Water

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [x] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes:

TAT Starts Day received by Lab, if received by 3:00 pm

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Date Time:	Received By:		Date Time:	Received By:
Relinquished by Sampler: 1 Jake Fer[illegible]	08/01/14 11:20	1 [signature]	Relinquished By: 2	8/1/14 11:20	2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #		

Preserved where applicable: [ ] | On Ice: [x] | Cooler Temp. | Thermo. Corr. Factor: 6.6

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Conestoga Rovers & Associates

Date/ Time Received: 08/01/2014 11:20:00 AM

Work Order #: 490609

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)?	6
#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)?	**No**
#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, ZnAc+NaOH?	**N/A**

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

Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 08/01/2014

Checklist reviewed by: Kelsey Brooks Date: 08/01/2014