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 Repo

Name of Company Chevron (CEMC)	Contact Luke Welch
Address 1400 Smith Street, Houston Texas, 77002	Telephone No. (713) 372-0292
Facility Name West Lovington Unit No. 20	Facility Type Produced Water Injection Well

Surface Owner State of New Mexico	Mineral Owner State of New Mexico	API No. 30-025-03884

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	05	17S	36E					Lea

Latitude 32.861573 **Longitude** -103.374474

NATURE OF RELEASE

Type of Release Spill to Land	Volume of Release 36 bbls of Produced Water	Volume Recovered 35 bbls of Produced Water
Source of Release Steel Injection Line	Date and Hour of Occurrence 5/10/13 and 10:30 a.m.	Date and Hour of Discovery 5/10/13 and 11:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mr. Geoffrey Leking	
By Whom? David Pagano	Date and Hour 5/11/13 and 10:00 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

Underground steel injection line leaked. Well was isolated upon discovery. Release resulted in an approximate 60 x 104 foot pool of fluids (north to south) approximately 180-feet south east of the well pad within the pasture and onto a lease road. A vacuum truck was dispatched and recovered 35 bbls of produced water.

Describe Area Affected and Cleanup Action Taken.*
A backhoe was used to excavate the top layer of visually impacted soils from approximately 12 to 18-inches below ground surface.

Three soil samples were collected to assess remedial excavation activities. These sampling results indicated the presence of chloride concentrations in shallow soils at levels of regulatory concern. In response, a comprehensive soil assessment was performed to confirm the extents of the impacts.

Results of the additional assessment 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: Luke Welch	OIL CONSERVATION DIVISION	
Printed Name: Luke Welch	Approved by Environmental Specialist: Bradford Billings	
Title: Project Manager	Approval Date: 12/2/2019	Expiration Date:
E-mail Address: lwelch@chevron.com	Conditions of Approval:	Attached ☐
Date: 11/20/14 Phone: (713) 372-0292		

* Attach Additional Sheets If Necessary

Original

CONESTOGA-ROVERS & ASSOCIATES

www.CRAworld.com

Final Report

SOIL ASSESSMENT AND DELINEATION ACTIVITIES REPORT WEST LOVINGTON UNIT #20 INJECTION LINE RELEASE RP #3296

Unit J, Section 5, Township 17 South, Range 36 East
Lea County, New Mexico

Prepared for: Chevron Environmental Management Company

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

November 2014 • 086498 • Report No. 1

Partners in Sustainability

Table of Contents

List of Figures
(Following Text)

List of Tables
(Following Text)

List of Appendices
(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 Lovington Unit #20 Injection Line Release location (hereafter referred to as the "Site").

This Report also serves as documentation of corrective actions performed by Chevron in association with Remediation Permit No. 3296 (RP #3296); which the New Mexico Oil Conservation Division (NMOCD) District I, Hobbs, New Mexico office assigned to the release in August of 2014.

Section 2.0 Project Information and Background

The Site is located in Unit J, Section 5, Township 17 South, Range 36 East, approximately 6 miles southwest of Lovington, New Mexico, in eastern Lea County (Figure 1 and Figure 2).

CRA understands that Chevron conducted initial field assessment activities at the Site in May 2013. Chevron's assessment included a site visit, soil sample collection, analytical laboratory analyses and preliminary determinations of impacts to environmental media. Following the initial field assessment activities Chevron delegated the continuation of assessment and delineation efforts for the Site to CEMC. In June 2014, CEMC contracted CRA to perform a comprehensive soil assessment at the Site by implementing a soil boring program.

On July 15, 2014, CRA mobilized to the Site to perform a site visit. During the site visit, proposed 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.

2.1 West Lovington Unit #20 Injection Line Release

Chevron submitted a C-141 Form to the NMOCD dated May 21, 2013, describing a release of 36 barrels (bbls) of produced water from an underground steel injection line. The C-141 reported that approximately 35 bbls of produced water were recovered by a vacuum truck. The release was described as follows:

> *The release resulted in a 60 by 104-foot pool of fluids about 180-feet southeast of the well pad.*

In September of 2013, Chevron collected three (3) surficial soil samples along the release path. These three 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 and DRO), and chlorides by EPA Method SM4500Cl-B. The following results were reported:

Sample Point	TPH (GRO + DRO)	Chlorides
SB #1	<10.0 (mg/kg)	<16.0 (mg/kg)
SB #2	<10.0 (mg/kg)	48.0 (mg/kg)
SB #3	GRO: <50.0 (mg/kg) DRO: 487 (mg/kg)	3080 (mg/kg)

Chevron returned to the Site in 2013 to perform remedial excavation activities. Chevron excavated visibly contaminated soils to a depth of approximately 18-inches below ground surface (bgs) (Figure 3). The excavated soils were loaded and transported to an approved disposal facility. The actual volume and final disposition of the excavated soils are unknown.

2.2 Recommended Remediation Action Limits

Information available on the Petroleum Recovery Research Center (PRRC) Mapping Portal, United States Geological Survey (USGS), Current Water Database for the Nation, and current (CRA) managed groundwater site(s) data demonstrate 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 Soil Assessment and Delineation Activities

On July 15, 2014, CRA's contracted service provider, Harrison & Cooper, Inc. (HCI) of Lubbock, Texas submitted an initial New Mexico one-call utility locate ticket (2014291459) pertaining to the installation of four soil borings under RP #3296. CRA submitted an MCBU Chevron Dig Plan with appropriate attachments for approval to the Chevron Buckeye Field Management Team. On July 30, 2014, HCI and CRA mobilized to the Site to begin soil boring activities. The soil borings were pre-cleared via air knife techniques to a depth of 5-feet bgs or until refusal. The remainder of each boring was advanced using an air rotary drill rig and split spoon sampling techniques were utilized to collect soil samples. Four soil borings were advanced across the Site. The four soil borings were advanced to a total depth of 35-feet bgs based on field screening for chlorides. A photo log documenting the drilling activities is included as Appendix B. Chloride concentrations in soil were field screened by mixing soil samples with distilled water. The rinsate was then screened using Hach chloride test strips. Soil borings were logged in accordance with the Unified Soil Classification System and recorded. Visual representation of the boring logs can be found in Appendix C. The location of the soil borings are 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, and SB-4) at varying intervals beginning at 5-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 SW8015 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 D. A Site Details and Analytical Results Map is presented as Figure 3.

3.1 Soil Sampling Analytical Results

The soil type observed in soil samples collected during the drilling program consisted of tan, dense caliche from the surface to approximately 15-feet bgs. Tan, very fine grain sandstone was observed from approximately 15-feet bgs to total depth (35-feet). Moisture content observed in the soil samples was dry in all instances.

All soil samples collected (SB-1, SB-2, SB-3, and SB-4) from the Site in 2014 for laboratory analyses exhibited concentrations below laboratory reporting limits and below Site RRALs for BTEX (50 mg/kg) and TPH (GRO + DRO) (500 mg/kg). Soil boring sample (SB-1) collected at 15 feet bgs exceeded the Site RRALs for chloride concentration at 1910 mg/kg. All other soil samples (SB-2, SB-3, and SB-4) collected from the Site in 2014 for laboratory analysis exhibited chloride concentrations in soil below Site RRALs (1,000 mg/kg). This data from the soil boring

program demonstrates that the nature and extent of hydrocarbon and chloride impacts from the release incident are minimal and the potential risk to impact groundwater is extremely low.

Section 4.0 Conclusions

A thorough subsurface investigation was implemented at the Site. Evaluation of the analytical data obtained from soil assessment and delineation activities performed in July of 2014 indicates 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 #3296.

If you have any questions or comments with regards 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.

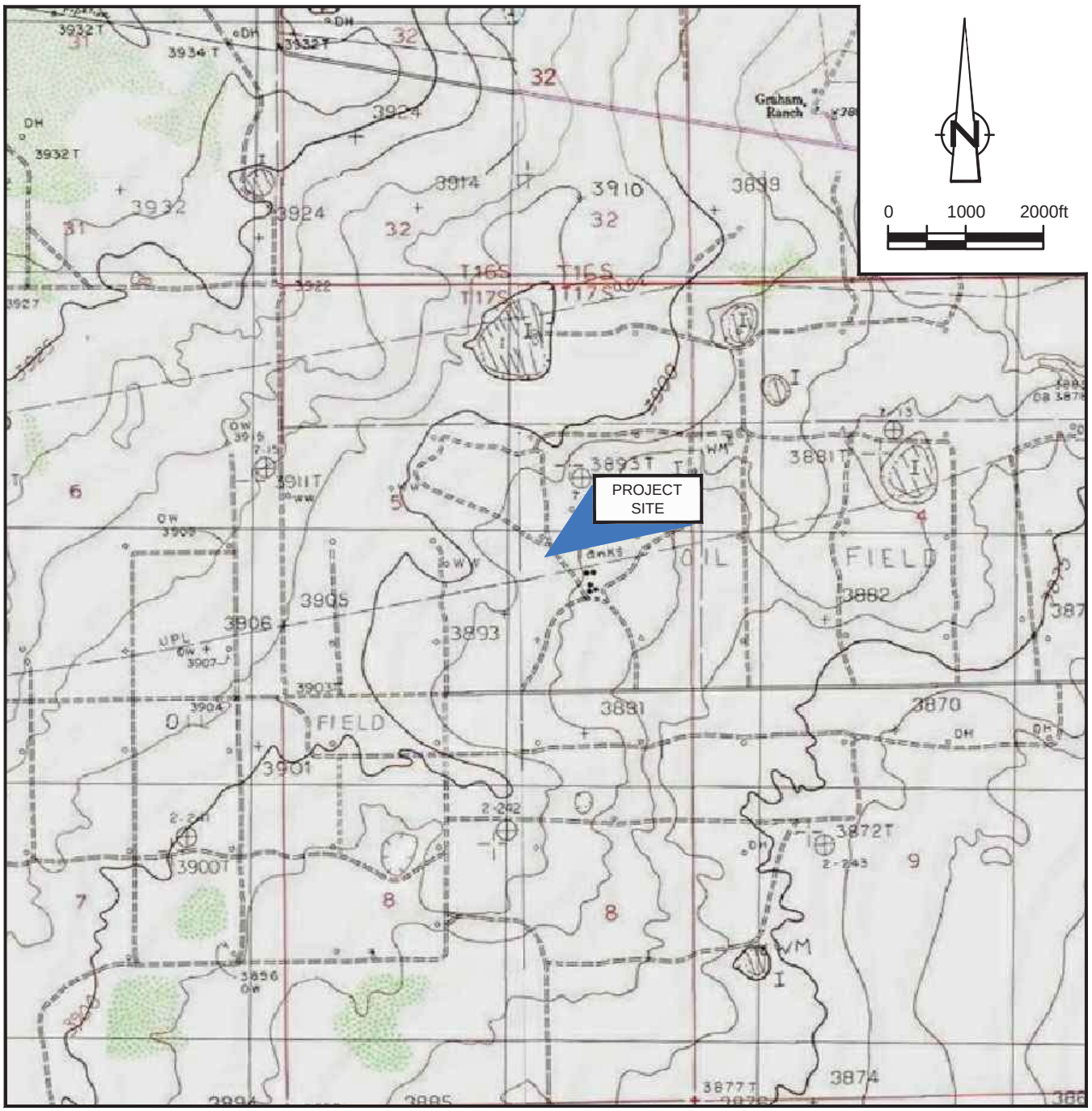
All of Which is Respectfully Submitted,

CONESTOGA ROVERS & ASSOCIATES

Thomas C. Larson
Principal, Midland Operations Manager

Jake L. Ferenz
Project Manager

Figures



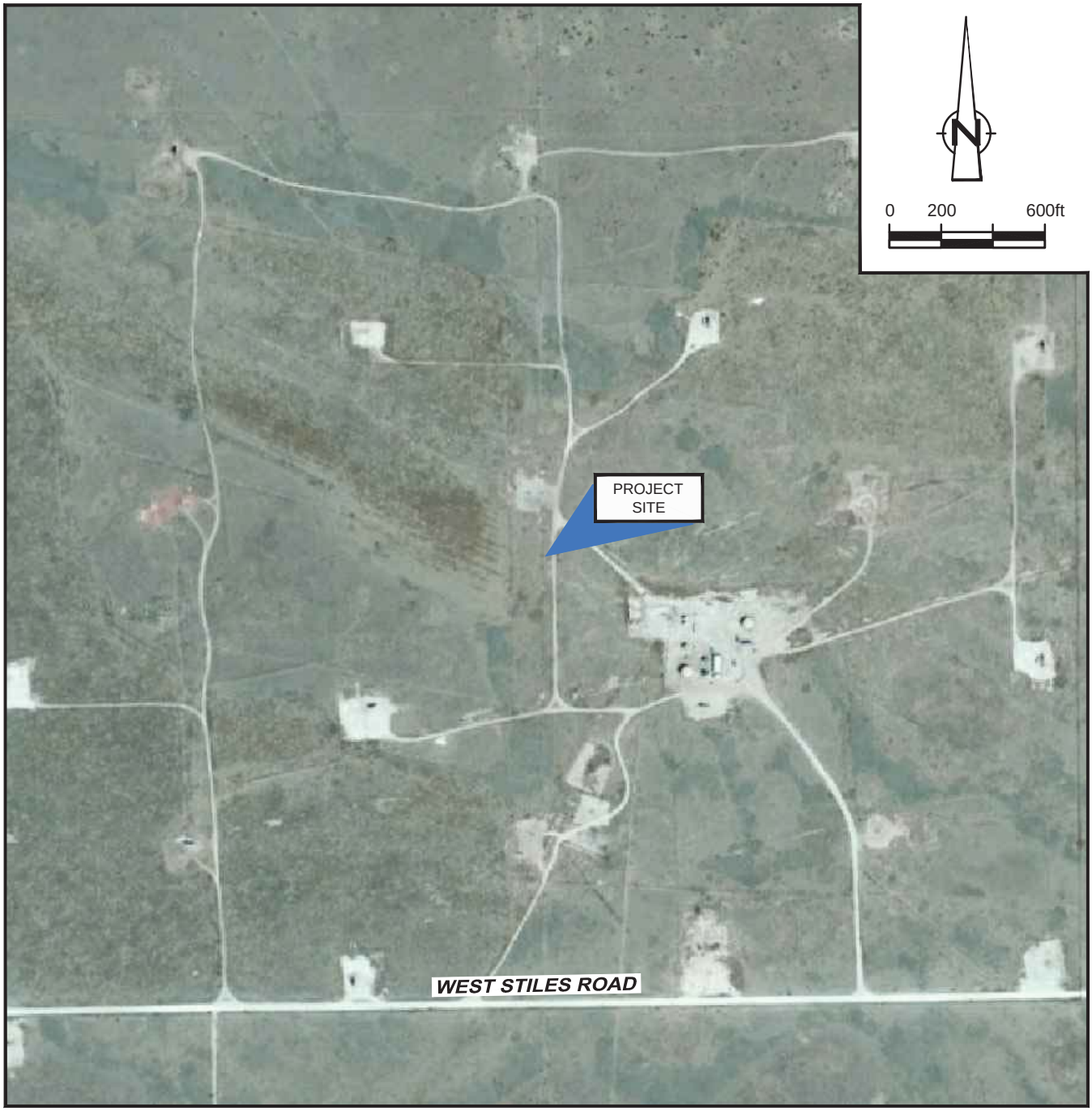
SOURCE: USGS 7.5 MINUTE QUAD
"LOVINGTON SE AND LOVINGTON SW, NEW MEXICO"

LAT/LONG: 32.8615° NORTH, 103.3745° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

figure 1

SITE LOCATION MAP
WEST LOVINGTON UNIT #20
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

086498-00(001)GN-DL001 AUG 29/2014



LAT/LONG: 32.8615° NORTH, 103.3745° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

figure 2

SITE AERIAL MAP
WEST LOVINGTON UNIT #20
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

086498-00(001)GN-DL001 AUG 29/2014

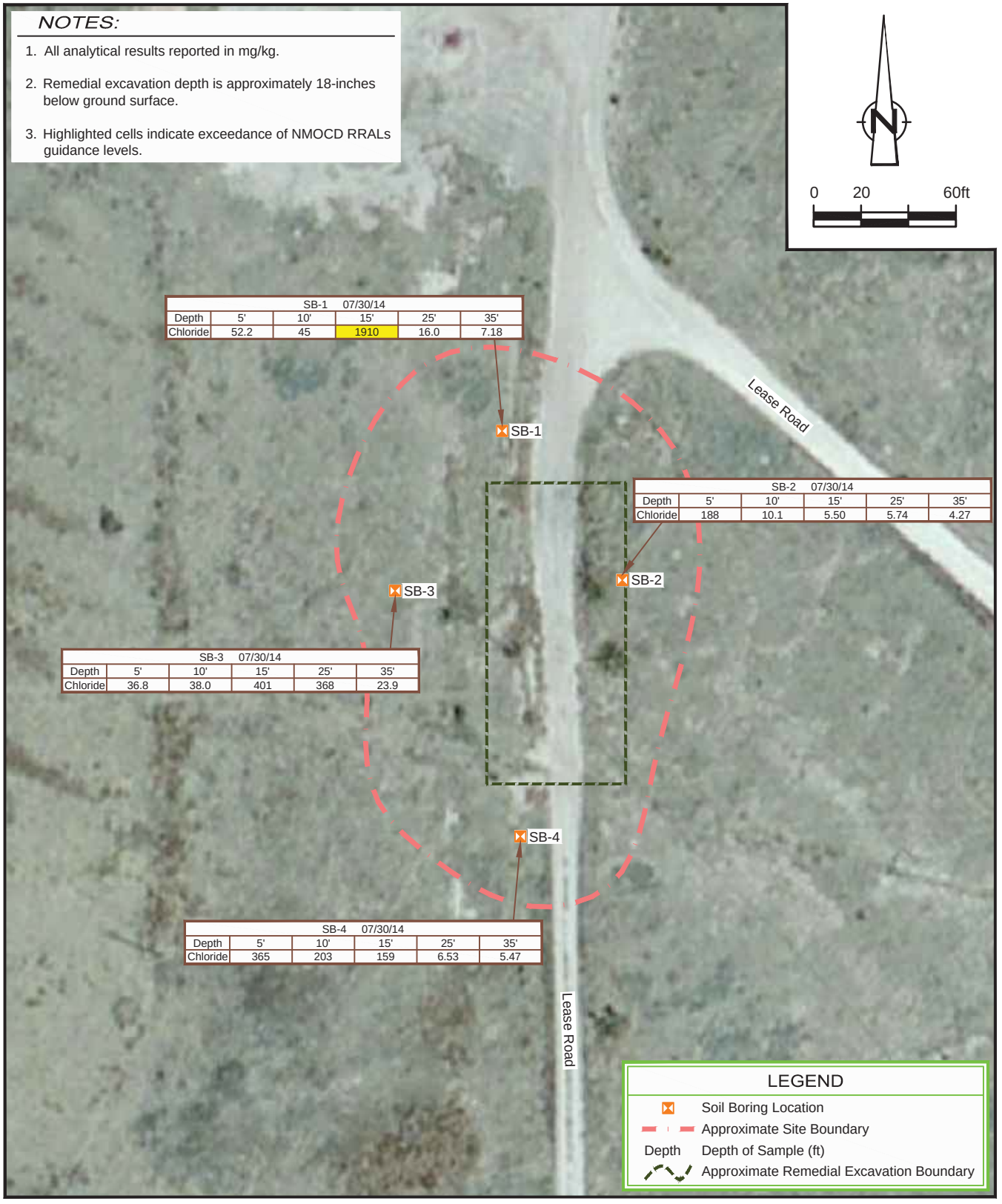


figure 3

SITE DETAILS AND ANALYTICAL RESULTS MAP
WEST LOVINGTON UNIT #20
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

Tables

TABLE 1

SOIL ANALYTICAL SUMMARY
WEST LOVINGTON UNIT #20 INJECTION LINE
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**	**---**	**2,500**	**1,000**
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SB #1	Surface	9/23/13	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	--	--	--	<16.0
SB #2	Surface	9/23/13	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	--	--	--	48.0
SB #3	Surface	9/23/13	<0.050	<0.050	<0.050	<0.150	<0.300	<50.0	487	--	--	--	--	3080
SB-1	5'	7/30/14	<0.00105	<0.00210	<0.00105	0.00272	0.00272	--	--	<15.7	<15.7	<15.7	<15.7	52.2
SB-1	10'	7/30/14	<0.00103	<0.00205	<0.00103	0.00255	0.00255	--	--	<15.4	<15.4	<15.4	<15.4	45
SB-1	15'	7/30/14	<0.00117	<0.00234	<0.00117	0.00374	0.00374	--	--	<17.6	<17.6	<17.6	<17.6	1910
SB-1	25'	7/30/14	<0.00128	<0.00255	<0.00128	0.00510	0.00510	--	--	<19.1	<19.1	<19.1	<19.1	16.0
SB-1	35'	7/30/14	<0.00104	<0.00209	0.00126	0.00489	0.00615	--	--	<15.7	<15.7	<15.7	<15.7	7.18
SB-2	5'	7/30/14	<0.00102	<0.00204	<0.00102	0.00501	0.00501	--	--	<15.4	<15.4	<15.4	<15.4	188
SB-2	10'	7/30/14	<0.00102	<0.00205	<0.00102	0.00376	0.00376	--	--	<15.4	<15.4	<15.4	<15.4	10.1
SB-2	15'	7/30/14	<0.00103	<0.00206	<0.00103	0.00356	0.00356	--	--	<15.4	<15.4	<15.4	<15.4	5.50
SB-2	25'	7/30/14	<0.00102	<0.00204	<0.00102	0.00407	0.00407	--	--	<15.4	<15.4	<15.4	<15.4	5.74
SB-2	35'	7/30/14	<0.00105	<0.00210	<0.00105	0.00249	0.00249	--	--	<15.8	<15.8	<15.8	<15.8	4.27
SB-3	5'	7/30/14	<0.00102	<0.00205	<0.00102	0.00383	0.00383	--	--	<15.4	<15.4	<15.4	<15.4	36.8
SB-3	10'	7/30/14	<0.00133	<0.00266	0.00150	0.00883	0.0103	--	--	<20.0	<20.0	<20.0	<20.0	38.0
SB-3	15'	7/30/14	<0.00105	<0.00210	<0.00105	0.00331	0.00331	--	--	<15.8	<15.8	<15.8	<15.8	401
SB-3	25'	7/30/14	<0.00129	<0.00259	<0.00129	0.00332	0.00332	--	--	<19.4	<19.4	<19.4	<19.4	368
SB-3	35'	7/30/14	<0.00123	<0.00246	<0.00123	0.00639	0.00639	--	--	<18.6	<18.6	<18.6	<18.6	23.9
SB-4	5'	7/30/14	<0.00105	<0.00209	<0.00105	0.00545	0.00545	--	--	<15.7	<15.7	<15.7	<15.7	365
SB-4	10'	7/30/14	<0.00107	<0.00214	<0.00107	0.00247	0.00247	--	--	<16.2	<16.2	<16.2	<16.2	203
SB-4	15'	7/30/14	<0.00104	<0.00208	<0.00104	<0.00104	<0.00104	--	--	<15.7	<15.7	<15.7	<15.7	159
SB-4	25'	7/30/14	<0.00106	<0.00213	<0.00106	<0.00106	<0.00106	--	--	<16.0	<16.0	<16.0	<16.0	6.53
SB-4	35'	7/30/14	<0.00105	<0.00211	<0.00105	<0.00105	<0.00105	--	--	<15.8	<15.8	<15.8	<15.8	5.47

Notes:

1. All analytical results reported in (mg/kg) milligrams per kilogram
2. 2013 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; (SS) indicates Soil Sample
10. "--" indicates not analyzed

Appendices

Appendix A

Original Form C-141

MDistrict 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**	Contact **David Pagano**
Address HCR 60, BOX 423 – Lovington, NM 88260 Physical: 56 Texas Camp Road, Lovington NM 88260	Telephone No. Office: 575-396-4414 ext 275 Cellular: 505-787-9816
Facility Name: West Lovington Unit #20	Facility Type: Produced Water Injection Well

Surface Owner: **State of New Mexico**	Mineral Owner **State of New Mexico**	API No. 30-025-03884

LOCATION OF RELEASE

Longitude: 32.861662 ° Latitude: -103.374497 °

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	05	17.0S	36E					Lea

NATURE OF RELEASE

Type of Release Spill to Land	Volume of Release 36bbls of Produced Water	Volume Recovered 35 bbls of Produced Water
Source of Release Free Water Knock Out (FWKO)	Date and Hour of Occurrence 5/10/13 10:30AM	Date and Hour of Discovery 5/10/13 11:00AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Geoffrey Leking	
By Whom? David Pagano	Date and Hour 5/11/13 10:00AM	
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.*

Underground Steel Injection line leaked. Field Specialist isolated well and contacted vacuum truck who recovered 35bbls of fluids.

Describe Area Affected and Cleanup Action Taken. *

Release resulted in 60 by 104 foot pool of fluids about 180ft SE of the well pad. Hyrdo Vac truck vacuumed up standing fluids and recovered 5 bbls of oil. Next step is to excavate visibly contaminated soil up to 18" and haul off to disposal facility. Contamination beyond 18" will be remediated by Chevron EMC.

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: David Pagano	OIL CONSERVATION DIVISION	
Printed Name: David Pagano	Approved by District Supervisor:	
Title: Health & Environmental Specialist	Approval Date:	Expiration Date:
Date: 5/21/13 Phone: 505-787-9816	Conditions of Approval:	Attached ☐

* Attach Additional Sheets If Necessary

Appendix B

Photograph Log

PHOTO 1: View of soil boring (SB-1) installation activities facing west

PHOTO 2: View of soil boring (SB-3) installation activities facing south west

Appendix C
Soil Boring Logs

SOIL BORING LOG

Project: WLU #20
Lea County, NM

Client: CEMC

No. SB-1

File No.: 086498
Date: 07/30/2014
Drilling Co.: HCl
Supervisor: Kenny Cooper
Type Rig: Air/Mud Rotary
Logged by: Jake Ferenz

LABORATORY TEST DATA (Results Reported in mg/kg)						FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	Chlorides	Photo-Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 2:25 pm Finish Time: 2:38
							☒	5			Caliche: White, very well cemented, consolidated
							☒	10			Caliche: Tan, consolidated, weathered
							☒	15			Sand: Tan, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone in matrix
								20			
							☒	25			
								30			
							☒	35			TD = 35-Feet
								40			

☒ Sampling Interval

Stratification is Inferred And May Not be Exact.
Soil Classification Based on Visual-Manual Procedure

Water First Noted

Analyzed Sample

SOIL BORING LOG

Project: WLU #20
Lea County, NM

Client: CEMC

No. SB-2

File No.: 086498
Date: 07/30/2014
Drilling Co.: HCl
Supervisor: Kenny Cooper
Type Rig: Air/Mud Rotary
Logged by: Jake Ferenz

LABORATORY TEST DATA (Results Reported in mg/kg)						FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	Chlorides	Photo-Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 2:54 pm Finish Time: 3:00
							☒	5			Caliche: White, very well cemented, consolidated
							☒	10			Caliche: Tan, consolidated, weathered
							☒	15			Sand: Tan, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone in matrix
								20			
							☒	25			
								30			
							☒	35			TD = 35-Feet
								40			

☒ Sampling Interval

Stratification is Inferred And May Not be Exact.
Soil Classification Based on Visual-Manual Procedure

▽ Water First Noted

⬭ Analyzed Sample

SOIL BORING LOG

Project: WLU #20
Lea County, NM

Client: CEMC

No. SB-3

File No.: 086498
Date: 07/30/2014
Drilling Co.: HCl
Supervisor: Kenny Cooper
Type Rig: Air/Mud Rotary
Logged by: Jake Ferenz

LABORATORY TEST DATA (Results Reported in mg/kg)						FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	Chlorides	Photo-Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 3:05 pm Finish Time: 3:19

Caliche: White, very well cemented, consolidated

5

Caliche: Tan, consolidated, weathered

10

15

Sand: Tan, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone in matrix

20

25

30

35

TD = 35-Feet

40

☒ Sampling Interval

Stratification is Inferred And May Not be Exact.
Soil Classification Based on Visual-Manual Procedure

Water First Noted

Analyzed Sample

SOIL BORING LOG

Project: WLU #20
Lea County, NM

Client: CEMC

No. SB-4

File No.: 086498
Date: 07/30/2014
Drilling Co.: HCl
Supervisor: Kenny Cooper
Type Rig: Air/Mud Rotary
Logged by: Jake Ferenz

LABORATORY TEST DATA (Results Reported in mg/kg)						FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	Chlorides	Photo-Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 3:23 pm Finish Time: 3:36
							☒	5			Caliche: White, very well cemented, consolidated
							☒	10			Caliche: Tan, consolidated, weathered
							☒	15			Sand: Tan to brown, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone in matrix
								20			
							☒	25			
								30			
							☒	35			TD = 35-Feet
								40			

☒ Sampling Interval

Stratification is Inferred And May Not be Exact.
Soil Classification Based on Visual-Manual Procedure

Water First Noted

Analyzed Sample

Appendix D

Soil Laboratory Analytical Report

Analytical Report 490523

for

Conestoga Rovers & Associates

Project Manager: Jacob Ferenz

WLU #20

086498

11-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)

11-AUG-14

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

Reference: XENCO Report No(s): **490523**
WLU #20
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) 490523. 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. 490523 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 490523

Conestoga Rovers & Associates, Midland, TX

WLU #20

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
086498-SB-1	S	07-30-14 14:26	- 5 ft	490523-001
086498-SB-1	S	07-30-14 14:28	- 10 ft	490523-002
086498-SB-1	S	07-30-14 14:30	- 15 ft	490523-003
086498-SB-1	S	07-30-14 14:34	- 25 ft	490523-004
086498-SB-1	S	07-30-14 14:38	- 35 ft	490523-005
086498-SB-2	S	07-30-14 14:54	- 5 ft	490523-006
086498-SB-2	S	07-30-14 14:55	- 10 ft	490523-007
086498-SB-2	S	07-30-14 14:57	- 15 ft	490523-008
086498-SB-2	S	07-30-14 14:59	- 25 ft	490523-009
086498-SB-2	S	07-30-14 15:03	- 35 ft	490523-010
086498-SB-3	S	07-30-14 15:07	- 5 ft	490523-011
086498-SB-3	S	07-30-14 15:09	- 10 ft	490523-012
086498-SB-3	S	07-30-14 15:11	- 15 ft	490523-013
086498-SB-3	S	07-30-14 15:15	- 25 ft	490523-014
086498-SB-3	S	07-30-14 15:19	- 35 ft	490523-015
086498-SB-4	S	07-30-14 15:24	- 5 ft	490523-016
086498-SB-4	S	07-30-14 15:26	- 10 ft	490523-017
086498-SB-4	S	07-30-14 15:28	- 15 ft	490523-018
086498-SB-4	S	07-30-14 15:32	- 25 ft	490523-019
086498-SB-4	S	07-30-14 15:36	- 35 ft	490523-020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 490523

Conestoga Rovers & Associates, Midland, TX

Project Name: WLU #20

Project Id: 086498
Contact: Jacob Ferenz
Project Location: Lea County,NM

Date Received in Lab: Thu Jul-31-14 04:15 pm
Report Date: 11-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	490523-001		490523-002		490523-003		490523-004		490523-005		490523-006	
	Field Id:	086498-SB-1		086498-SB-1		086498-SB-1		086498-SB-1		086498-SB-1		086498-SB-2	
	Depth:	5 ft		10 ft		15 ft		25 ft		35 ft		5 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-30-14 14:26		Jul-30-14 14:28		Jul-30-14 14:30		Jul-30-14 14:34		Jul-30-14 14:38		Jul-30-14 14:54	
BTEX by EPA 8021B	Extracted:	Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00	
	Analyzed:	Aug-05-14 12:57		Aug-05-14 16:46		Aug-05-14 17:55		Aug-05-14 18:11		Aug-05-14 18:45		Aug-05-14 19:01	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00105	ND	0.00103	ND	0.00117	ND	0.00128	ND	0.00104	ND	0.00102
Toluene		ND	0.00210	ND	0.00205	ND	0.00234	ND	0.00255	ND	0.00209	ND	0.00204
Ethylbenzene		ND	0.00105	ND	0.00103	ND	0.00117	ND	0.00128	0.00126	0.00104	ND	0.00102
m,p-Xylenes		0.00272	0.00210	0.00255	0.00205	0.00374	0.00234	0.00510	0.00255	0.00489	0.00209	0.00501	0.00204
o-Xylene		ND	0.00105	ND	0.00103	ND	0.00117	ND	0.00128	ND	0.00104	ND	0.00102
Total Xylenes		0.00272	0.00105	0.00255	0.00103	0.00374	0.00117	0.00510	0.00128	0.00489	0.00104	0.00501	0.00102
Total BTEX		0.00272	0.00105	0.00255	0.00103	0.00374	0.00117	0.00510	0.00128	0.00615	0.00104	0.00501	0.00102
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-01-14 12:30		Aug-01-14 12:30		Aug-01-14 12:30		Aug-01-14 12:30		Aug-01-14 12:30		Aug-04-14 10:00	
	Analyzed:	Aug-01-14 21:23		Aug-01-14 22:08		Aug-01-14 22:30		Aug-01-14 22:53		Aug-01-14 23:16		Aug-04-14 14:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		52.2	10.5	45.0	10.3	1910	117	16.0	2.56	7.18	2.10	188	10.3
Percent Moisture	Extracted:												
	Analyzed:	Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		4.75	1.00	3.20	1.00	14.8	1.00	21.9	1.00	4.66	1.00	2.91	1.00
TPH By SW8015 Mod	Extracted:	Aug-01-14 18:00		Aug-01-14 18:00		Aug-01-14 18:00		Aug-01-14 18:00		Aug-01-14 18:00		Aug-01-14 18:00	
	Analyzed:	Aug-02-14 05:22		Aug-02-14 05:50		Aug-02-14 06:15		Aug-02-14 06:40		Aug-02-14 07:59		Aug-02-14 08:26	
	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	15.4	ND	17.6	ND	19.1	ND	15.7	ND	15.4
C12-C28 Diesel Range Hydrocarbons		ND	15.7	ND	15.4	ND	17.6	ND	19.1	ND	15.7	ND	15.4
C28-C35 Oil Range Hydrocarbons		ND	15.7	ND	15.4	ND	17.6	ND	19.1	ND	15.7	ND	15.4
Total TPH		ND	15.7	ND	15.4	ND	17.6	ND	19.1	ND	15.7	ND	15.4

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 490523

Conestoga Rovers & Associates, Midland, TX

Project Name: WLU #20

Project Id: 086498
Contact: Jacob Ferenz
Project Location: Lea County,NM

Date Received in Lab: Thu Jul-31-14 04:15 pm
Report Date: 11-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	490523-007		490523-008		490523-009		490523-010		490523-011		490523-012	
	Field Id:	086498-SB-2		086498-SB-2		086498-SB-2		086498-SB-2		086498-SB-3		086498-SB-3	
	Depth:	10 ft		15 ft		25 ft		35 ft		5 ft		10 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-30-14 14:55		Jul-30-14 14:57		Jul-30-14 14:59		Jul-30-14 15:03		Jul-30-14 15:07		Jul-30-14 15:09	
BTEX by EPA 8021B	**Extracted:**	Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00	
	Analyzed:	Aug-05-14 19:18		Aug-05-14 19:35		Aug-05-14 20:23		Aug-05-14 20:40		Aug-05-14 20:56		Aug-05-14 21:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00102	ND	0.00103	ND	0.00102	ND	0.00105	ND	0.00102	ND	0.00133
Toluene		ND	0.00205	ND	0.00206	ND	0.00204	ND	0.00210	ND	0.00205	ND	0.00266
Ethylbenzene		ND	0.00102	ND	0.00103	ND	0.00102	ND	0.00105	ND	0.00102	0.00150	0.00133
m,p-Xylenes		0.00376	0.00205	0.00356	0.00206	0.00407	0.00204	0.00249	0.00210	0.00383	0.00205	0.00727	0.00266
o-Xylene		ND	0.00102	ND	0.00103	ND	0.00102	ND	0.00105	ND	0.00102	0.00156	0.00133
Total Xylenes		0.00376	0.00102	0.00356	0.00103	0.00407	0.00102	0.00249	0.00105	0.00383	0.00102	0.00883	0.00133
Total BTEX		0.00376	0.00102	0.00356	0.00103	0.00407	0.00102	0.00249	0.00105	0.00383	0.00102	0.0103	0.00133
Inorganic Anions by EPA 300/300.1	**Extracted:**	Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00	
	Analyzed:	Aug-04-14 15:23		Aug-04-14 15:46		Aug-04-14 16:13		Aug-04-14 16:36		Aug-04-14 16:58		Aug-04-14 18:07	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		10.1	2.05	5.50	2.06	5.74	2.06	4.27	2.11	36.8	10.3	38.0	13.3
Percent Moisture	**Extracted:**												
	Analyzed:	Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		2.61	1.00	3.13	1.00	2.77	1.00	5.23	1.00	2.52	1.00	24.9	1.00
TPH By SW8015 Mod	**Extracted:**	Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00	
	Analyzed:	Aug-04-14 20:33		Aug-04-14 21:51		Aug-04-14 22:16		Aug-04-14 22:40		Aug-04-14 23:08		Aug-04-14 23:36	
	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	15.4	ND	15.4	ND	15.4	ND	15.8	ND	15.4	ND	20.0
C12-C28 Diesel Range Hydrocarbons		ND	15.4	ND	15.4	ND	15.4	ND	15.8	ND	15.4	ND	20.0
C28-C35 Oil Range Hydrocarbons		ND	15.4	ND	15.4	ND	15.4	ND	15.8	ND	15.4	ND	20.0
Total TPH		ND	15.4	ND	15.4	ND	15.4	ND	15.8	ND	15.4	ND	20.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 490523

Conestoga Rovers & Associates, Midland, TX

Project Name: WLU #20

Project Id: 086498
Contact: Jacob Ferenz
Project Location: Lea County,NM

Date Received in Lab: Thu Jul-31-14 04:15 pm
Report Date: 11-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	490523-013		490523-014		490523-015		490523-016		490523-017		490523-018	
	Field Id:	086498-SB-3		086498-SB-3		086498-SB-3		086498-SB-4		086498-SB-4		086498-SB-4	
	Depth:	15 ft		25 ft		35 ft		5 ft		10 ft		15 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-30-14 15:11		Jul-30-14 15:15		Jul-30-14 15:19		Jul-30-14 15:24		Jul-30-14 15:26		Jul-30-14 15:28	
BTEX by EPA 8021B	Extracted:	Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00		Aug-05-14 10:00	
	Analyzed:	Aug-05-14 21:30		Aug-05-14 21:46		Aug-05-14 22:03		Aug-05-14 22:19		Aug-05-14 22:36		Aug-05-14 22:52	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00105	ND	0.00129	ND	0.00123	ND	0.00105	ND	0.00107	ND	0.00104
Toluene		ND	0.00210	ND	0.00259	ND	0.00246	ND	0.00209	ND	0.00214	ND	0.00208
Ethylbenzene		ND	0.00105	ND	0.00129	ND	0.00123	ND	0.00105	ND	0.00107	ND	0.00104
m,p-Xylenes		0.00331	0.00210	0.00332	0.00259	0.00515	0.00246	0.00438	0.00209	0.00247	0.00214	ND	0.00208
o-Xylene		ND	0.00105	ND	0.00129	0.00124	0.00123	0.00107	0.00105	ND	0.00107	ND	0.00104
Total Xylenes		0.00331	0.00105	0.00332	0.00129	0.00639	0.00123	0.00545	0.00105	0.00247	0.00107	ND	0.00104
Total BTEX		0.00331	0.00105	0.00332	0.00129	0.00639	0.00123	0.00545	0.00105	0.00247	0.00107	ND	0.00104
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00		Aug-04-14 10:00	
	Analyzed:	Aug-04-14 18:29		Aug-04-14 18:52		Aug-04-14 19:14		Aug-04-14 19:37		Aug-04-14 20:22		Aug-04-14 20:45	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		401	42.2	368	26.0	23.9	2.48	365	21.0	203	10.8	159	10.4
Percent Moisture	Extracted:												
	Analyzed:	Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00		Aug-04-14 00:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		5.32	1.00	23.0	1.00	19.3	1.00	4.76	1.00	7.49	1.00	4.25	1.00
TPH By SW8015 Mod	Extracted:	Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00		Aug-04-14 17:00	
	Analyzed:	Aug-05-14 00:01		Aug-05-14 00:25		Aug-05-14 00:52		Aug-05-14 01:20		Aug-05-14 02:13		Aug-05-14 02:38	
	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	15.8	ND	19.4	ND	18.6	ND	15.7	ND	16.2	ND	15.7
C12-C28 Diesel Range Hydrocarbons		ND	15.8	ND	19.4	ND	18.6	ND	15.7	ND	16.2	ND	15.7
C28-C35 Oil Range Hydrocarbons		ND	15.8	ND	19.4	ND	18.6	ND	15.7	ND	16.2	ND	15.7
Total TPH		ND	15.8	ND	19.4	ND	18.6	ND	15.7	ND	16.2	ND	15.7

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 490523

Conestoga Rovers & Associates, Midland, TX

Project Name: WLU #20

Project Id: 086498
Contact: Jacob Ferenz
Project Location: Lea County,NM

Date Received in Lab: Thu Jul-31-14 04:15 pm
Report Date: 11-AUG-14
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	490523-019		490523-020					
	Field Id:	086498-SB-4		086498-SB-4					
	Depth:	25 ft		35 ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Jul-30-14 15:32		Jul-30-14 15:36					
BTEX by EPA 8021B	***Extracted:***	Aug-06-14 17:00		Aug-06-14 17:00					
	Analyzed:	Aug-06-14 22:53		Aug-06-14 23:09					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		ND	0.00106	ND	0.00105				
Toluene		ND	0.00213	ND	0.00211				
Ethylbenzene		ND	0.00106	ND	0.00105				
m,p-Xylenes		ND	0.00213	ND	0.00211				
o-Xylene		ND	0.00106	ND	0.00105				
Total Xylenes		ND	0.00106	ND	0.00105				
Total BTEX		ND	0.00106	ND	0.00105				
Inorganic Anions by EPA 300/300.1	***Extracted:***	Aug-04-14 10:00		Aug-04-14 10:00					
	Analyzed:	Aug-04-14 21:08		Aug-04-14 21:30					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		6.53	2.13	5.47	2.12				
Percent Moisture	***Extracted:***								
	Analyzed:	Aug-04-14 00:00		Aug-04-14 00:00					
	Units/RL:	%	RL	%	RL				
Percent Moisture		6.29	1.00	5.59	1.00				
TPH By SW8015 Mod	***Extracted:***	Aug-04-14 17:00		Aug-04-14 17:00					
	Analyzed:	Aug-05-14 03:03		Aug-05-14 03:28					
	Units/RL:	mg/kg	RL	mg/kg	RL				
C6-C12 Gasoline Range Hydrocarbons		ND	16.0	ND	15.8				
C12-C28 Diesel Range Hydrocarbons		ND	16.0	ND	15.8				
C28-C35 Oil Range Hydrocarbons		ND	16.0	ND	15.8				
Total TPH		ND	16.0	ND	15.8				

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

Form 2 - Surrogate Recoveries

Project Name: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947169 **Sample:** 490523-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 05:22

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.4	99.6	98	70-135	
o-Terphenyl	45.3	49.8	91	70-135	

Lab Batch #: 947169 **Sample:** 490523-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 05:50

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.9	99.7	88	70-135	
o-Terphenyl	41.1	49.9	82	70-135	

Lab Batch #: 947169 **Sample:** 490523-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 06:15

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.1	99.9	92	70-135	
o-Terphenyl	43.0	50.0	86	70-135	

Lab Batch #: 947169 **Sample:** 490523-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 06:40

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.6	106	70-135	
o-Terphenyl	51.1	49.8	103	70-135	

Lab Batch #: 947169 **Sample:** 490523-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 07:59

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.5	99.8	87	70-135	
o-Terphenyl	40.5	49.9	81	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: WLU #20

Work Orders : 490523,

Project ID: 086498

Lab Batch #: 947169 **Sample:** 490523-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 08:26

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.0	99.8	86	70-135	
o-Terphenyl	39.0	49.9	78	70-135	

Lab Batch #: 947341 **Sample:** 490523-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 20:33

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.8	109	70-135	
o-Terphenyl	53.5	49.9	107	70-135	

Lab Batch #: 947341 **Sample:** 490523-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 21:51

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.6	103	70-135	
o-Terphenyl	50.7	49.8	102	70-135	

Lab Batch #: 947341 **Sample:** 490523-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 22:16

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	99.7	98	70-135	
o-Terphenyl	48.1	49.9	96	70-135	

Lab Batch #: 947341 **Sample:** 490523-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 22:40

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.9	103	70-135	
o-Terphenyl	47.5	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 / B

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

Form 2 - Surrogate Recoveries

Project Name: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947341 **Sample:** 490523-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 23:08

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	129	99.9	129	70-135	
o-Terphenyl	61.7	50.0	123	70-135	

Lab Batch #: 947341 **Sample:** 490523-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 23:36

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	100	117	70-135	
o-Terphenyl	58.8	50.0	118	70-135	

Lab Batch #: 947341 **Sample:** 490523-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 00:01

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	99.7	124	70-135	
o-Terphenyl	62.4	49.9	125	70-135	

Lab Batch #: 947341 **Sample:** 490523-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 00:25

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	99.8	112	70-135	
o-Terphenyl	56.1	49.9	112	70-135	

Lab Batch #: 947341 **Sample:** 490523-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 00:52

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	99.8	116	70-135	
o-Terphenyl	58.2	49.9	117	70-135	

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

Form 2 - Surrogate Recoveries

Project Name: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947341 **Sample:** 490523-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 01:20

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.7	102	70-135	
o-Terphenyl	50.6	49.9	101	70-135	

Lab Batch #: 947341 **Sample:** 490523-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 02:13

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.9	107	70-135	
o-Terphenyl	53.3	50.0	107	70-135	

Lab Batch #: 947341 **Sample:** 490523-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 02:38

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.9	102	70-135	
o-Terphenyl	50.7	50.0	101	70-135	

Lab Batch #: 947341 **Sample:** 490523-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 03:03

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.7	106	70-135	
o-Terphenyl	53.2	49.9	107	70-135	

Lab Batch #: 947341 **Sample:** 490523-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 03:28

TPH By SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	99.7	117	70-135	
o-Terphenyl	58.8	49.9	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

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

Form 2 - Surrogate Recoveries

Project Name: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947343 **Sample:** 490523-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 12:57

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 947343 **Sample:** 490523-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 16:46

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY 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	0.0307	0.0300	102	80-120	

Lab Batch #: 947343 **Sample:** 490523-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 17:55

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY 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	0.0315	0.0300	105	80-120	

Lab Batch #: 947343 **Sample:** 490523-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 18:11

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

Lab Batch #: 947343 **Sample:** 490523-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 18:45

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY 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	0.0289	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: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947343 **Sample:** 490523-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 19:01

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

Lab Batch #: 947343 **Sample:** 490523-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 19:18

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 947343 **Sample:** 490523-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 19:35

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY 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	0.0305	0.0300	102	80-120	

Lab Batch #: 947343 **Sample:** 490523-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 20:23

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0302	0.0300	101	80-120	

Lab Batch #: 947343 **Sample:** 490523-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 20:40

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY 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	0.0309	0.0300	103	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947343 **Sample:** 490523-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 20:56

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0299	0.0300	100	80-120	

Lab Batch #: 947343 **Sample:** 490523-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 21:13

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0292	0.0300	97	80-120	

Lab Batch #: 947343 **Sample:** 490523-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 21:30

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0310	0.0300	103	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 947343 **Sample:** 490523-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 21:46

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0314	0.0300	105	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	80-120	

Lab Batch #: 947343 **Sample:** 490523-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 22:03

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0297	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: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947343 **Sample:** 490523-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 22:19

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 947343 **Sample:** 490523-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 22:36

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 947343 **Sample:** 490523-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 22:52

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0293	0.0300	98	80-120	

Lab Batch #: 947588 **Sample:** 490523-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/06/14 22:53

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Lab Batch #: 947588 **Sample:** 490523-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/06/14 23:09

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY 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	0.0302	0.0300	101	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: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947169 **Sample:** 659330-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/02/14 00:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.2	100	99	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 947341 **Sample:** 659453-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/04/14 19:17

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	100	111	70-135	
o-Terphenyl	56.7	50.0	113	70-135	

Lab Batch #: 947343 **Sample:** 659455-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/05/14 11:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 947588 **Sample:** 659617-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/06/14 21:15

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	0.0274	0.0300	91	80-120	

Lab Batch #: 947169 **Sample:** 659330-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/02/14 01:00

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.9	100	98	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947341 **Sample:** 659453-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/04/14 19:41

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	100	128	70-135	
o-Terphenyl	64.5	50.0	129	70-135	

Lab Batch #: 947343 **Sample:** 659455-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/05/14 11:35

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	0.0308	0.0300	103	80-120	

Lab Batch #: 947588 **Sample:** 659617-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/06/14 21:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	80-120	

Lab Batch #: 947169 **Sample:** 659330-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/02/14 01:29

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.8	100	92	70-135	
o-Terphenyl	45.7	50.0	91	70-135	

Lab Batch #: 947341 **Sample:** 659453-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/04/14 20:07

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	64.9	50.0	130	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: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947343 **Sample:** 659455-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/05/14 11:52

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	0.0307	0.0300	102	80-120	

Lab Batch #: 947588 **Sample:** 659617-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/06/14 21:48

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	0.0307	0.0300	102	80-120	

Lab Batch #: 947169 **Sample:** 490501-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 03:40

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.9	103	70-135	
o-Terphenyl	48.0	50.0	96	70-135	

Lab Batch #: 947341 **Sample:** 490523-007 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 20:57

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	99.8	124	70-135	
o-Terphenyl	62.0	49.9	124	70-135	

Lab Batch #: 947343 **Sample:** 490523-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 12:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0308	0.0300	103	80-120	
4-Bromofluorobenzene	0.0329	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

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: WLU #20

Work Orders : 490523, **Project ID:** 086498

Lab Batch #: 947588 **Sample:** 490654-003 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/06/14 22:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

Lab Batch #: 947169 **Sample:** 490501-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/14 04:05

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.9	99.9	97	70-135	
o-Terphenyl	50.1	50.0	100	70-135	

Lab Batch #: 947341 **Sample:** 490523-007 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/14 21:24

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	99.9	128	70-135	
o-Terphenyl	62.3	50.0	125	70-135	

Lab Batch #: 947343 **Sample:** 490523-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/14 12:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0338	0.0300	113	80-120	

Lab Batch #: 947588 **Sample:** 490654-003 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/06/14 22:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	80-120	
4-Bromofluorobenzene	0.0345	0.0300	115	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: WLU #20

Work Order #: 490523 **Project ID:** 086498

Analyst: ARM **Date Prepared:** 08/05/2014 **Date Analyzed:** 08/05/2014

Lab Batch ID: 947343 **Sample:** 659455-1-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	0.0970	97	0.100	0.0984	98	1	70-130	35	
Toluene	<0.00200	0.100	0.101	101	0.100	0.102	102	1	70-130	35	
Ethylbenzene	<0.00100	0.100	0.104	104	0.100	0.105	105	1	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.209	105	0.200	0.212	106	1	70-135	35	
o-Xylene	<0.00100	0.100	0.100	100	0.100	0.101	101	1	71-133	35	

Analyst: ARM **Date Prepared:** 08/06/2014 **Date Analyzed:** 08/06/2014

Lab Batch ID: 947588 **Sample:** 659617-1-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	0.0956	96	0.100	0.0928	93	3	70-130	35	
Toluene	<0.00200	0.100	0.0982	98	0.100	0.0959	96	2	70-130	35	
Ethylbenzene	<0.00100	0.100	0.101	101	0.100	0.0984	98	3	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.202	101	0.200	0.198	99	2	70-135	35	
o-Xylene	<0.00100	0.100	0.0985	99	0.100	0.0962	96	2	71-133	35	

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

BS / BSD Recoveries

Project Name: WLU #20

Work Order #: 490523 **Project ID:** 086498

Analyst: JUM **Date Prepared:** 08/01/2014 **Date Analyzed:** 08/01/2014

Lab Batch ID: 947150 **Sample:** 659315-1-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	52.6	105	50.0	46.2	92	13	80-120	20	

Analyst: JUM **Date Prepared:** 08/04/2014 **Date Analyzed:** 08/04/2014

Lab Batch ID: 947522 **Sample:** 659375-1-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	49.1	98	50.0	48.3	97	2	80-120	20	

Analyst: JUM **Date Prepared:** 08/01/2014 **Date Analyzed:** 08/02/2014

Lab Batch ID: 947169 **Sample:** 659330-1-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	825	83	1000	801	80	3	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	867	87	1000	821	82	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

BS / BSD Recoveries

Project Name: WLU #20

Work Order #: 490523 **Project ID:** 086498

Analyst: ARM **Date Prepared:** 08/04/2014 **Date Analyzed:** 08/04/2014

Lab Batch ID: 947341 **Sample:** 659453-1-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	866	87	1000	880	88	2	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.0	1000	1070	107	1000	1080	108	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: WLU #20

Work Order #: 490523

Lab Batch #: 947150 **Project ID:** 086498

Date Analyzed: 08/01/2014 **Date Prepared:** 08/01/2014 **Analyst:** JUM

QC- Sample ID: 490523-001 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	52.2	262	309	98	80-120	

Lab Batch #: 947150

Date Analyzed: 08/01/2014 **Date Prepared:** 08/01/2014 **Analyst:** JUM

QC- Sample ID: 490563-001 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	73400	100000	181000	108	80-120	

Lab Batch #: 947522

Date Analyzed: 08/04/2014 **Date Prepared:** 08/04/2014 **Analyst:** JUM

QC- Sample ID: 490523-006 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	188	257	423	91	80-120	

Lab Batch #: 947522

Date Analyzed: 08/04/2014 **Date Prepared:** 08/04/2014 **Analyst:** JUM

QC- Sample ID: 490523-016 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	365	525	868	96	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

Form 3 - MS / MSD Recoveries

Project Name: WLU #20

Work Order # : 490523 **Project ID:** 086498

Lab Batch ID: 947343 **QC- Sample ID:** 490523-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/05/2014 **Date Prepared:** 08/05/2014 **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	<0.00105	0.105	0.103	98	0.105	0.104	99	1	70-130	35	
Toluene	<0.00210	0.105	0.107	102	0.105	0.108	103	1	70-130	35	
Ethylbenzene	<0.00105	0.105	0.111	106	0.105	0.112	107	1	71-129	35	
m,p-Xylenes	0.00272	0.210	0.222	104	0.210	0.226	106	2	70-135	35	
o-Xylene	<0.00105	0.105	0.107	102	0.105	0.110	105	3	71-133	35	

Lab Batch ID: 947588 **QC- Sample ID:** 490654-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/06/2014 **Date Prepared:** 08/06/2014 **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	<0.00111	0.111	0.0918	83	0.111	0.0915	82	0	70-130	35	
Toluene	<0.00222	0.111	0.0932	84	0.111	0.0945	85	1	70-130	35	
Ethylbenzene	<0.00111	0.111	0.0925	83	0.111	0.0960	86	4	71-129	35	
m,p-Xylenes	<0.00222	0.222	0.184	83	0.221	0.192	87	4	70-135	35	
o-Xylene	<0.00111	0.111	0.0896	81	0.111	0.0928	84	4	71-133	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.

Form 3 - MS / MSD Recoveries

Project Name: WLU #20

Work Order # : 490523 **Project ID:** 086498

Lab Batch ID: 947169 **QC- Sample ID:** 490501-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/02/2014 **Date Prepared:** 08/01/2014 **Analyst:** JUM

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	1060	854	81	1060	864	82	1	70-135	35	
C12-C28 Diesel Range Hydrocarbons	361	1060	1370	95	1060	1260	85	8	70-135	35	

Lab Batch ID: 947341 **QC- Sample ID:** 490523-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/04/2014 **Date Prepared:** 08/04/2014 **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	<15.4	1020	912	89	1030	1080	105	17	70-135	35	
C12-C28 Diesel Range Hydrocarbons	<15.4	1020	1100	108	1030	1140	111	4	70-135	35	

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

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

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: WLU #20

Work Order #: 490523

Lab Batch #: 947213 **Project ID:** 086498

Date Analyzed: 08/04/2014 00:00 **Date Prepared:** 08/04/2014 **Analyst:** WRU

QC- Sample ID: 490523-001 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	4.75	3.94	19	20	

Lab Batch #: 947213

Date Analyzed: 08/04/2014 00:00 **Date Prepared:** 08/04/2014 **Analyst:** WRU

QC- Sample ID: 490523-011 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	2.52	2.50	1	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

CHAIN OF CUSTODY

Page 1 Of 2

XENCO LABORATORIES

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Xenco Quote # | Xenco Job # 490523

Client / Reporting Information

Company Name / Branch: CRA

Company Address: 2135 SLOOP 250W MIDLAND TX 79703

Email: JFUNZ@CRAWORLD.COM Phone No: 512 922-5043

Project Contact: Jake Funz

Samplers's Name: Jake Funz

Project Information

Project Name/Number: WLH # 20-086498

Project Location: Lea County, NM

Invoice To:

PO Number:

Analytical Information

BTEX | TPH (GRO + DRO) | Chlorides

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	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Field Comments
1	086498 - SB-1	5'	7/30/14	2:26 pm	S	1								X	
2	086498 - SB-1	10'		2:28											
3	086498 - SB-1	15'		2:30											
4	086498 - SB-1	25'		2:34											
5	086498 - SB-1	35'		2:38											
6	086498 - SB-2	5'		2:54											
7	086498 - SB-2	10'		2:55											
8	086498 - SB-2	15'		2:57											
9	086498 - SB-2	25'		2:59											
10	086498 - SB-2	35'		3:03											

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 Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Jake Funz	7/31/14 12:15pm		2		
3	Relinquished by: Stan Mesa	Date Time: 7-31-14 915	Received By:	Relinquished By: 4	Date Time: 7/31/14 1615	Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: X

Cooler Temp. | Thermo. Corr. Factor: —/1

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.

CHAIN OF CUSTODY

Page 2 Of 2

XENCO LABORATORIES

Setting the Standard since 1990

Stafford, Texas (281-240-4200)
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Lakeland, Florida (863-646-8526)
Tampa, Florida (813-620-2000)
www.xenco.com

Xenco Quote #:
Xenco Job #: 490523

Client / Reporting Information

Company Name / Branch: CRA
Company Address: 2135 S Loop 250 W Midland TX 79703
Email: [illegible]@craworld.com
Phone No: 512 [illegible]
Project Contact: John Frantz
Samplers's Name: John Frantz

Project Information

Project Name/Number:
Project Location: 20 - 086498
Invoice To:
PO Number:

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

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	086498 - SB-3	5'	7/30/14	3:07	S	1								X	X	X	X	
2	086498 - SB-3	10'	↓	3:09	↓	↓								↓	↓	↓	↓	
3	086498 - SB-3	15'	↓	3:11	↓	↓								↓	↓	↓	↓	
4	086498 - SB-3	25'	↓	3:15	↓	↓								↓	↓	↓	↓	
5	086498 - SB-3	35'	↓	3:19	↓	↓								↓	↓	↓	↓	
6	086498 - SB-4	5'	↓	3:24	↓	↓								↓	↓	↓	↓	
7	086498 - SB-4	10'	↓	3:26	↓	↓								↓	↓	↓	↓	
8	086498 - SB-4	15'	↓	3:28	↓	↓								↓	↓	↓	↓	
9	086498 - SB-4	25'	↓	3:32	↓	↓								↓	↓	↓	↓	
10	086498 - SB-4	35'	↓	3:36	↓	↓								↓	↓	↓	↓	

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

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]	7/31/14 12:15 pm	[blank]	2		2
3 Relinquished by: [signature]	7-31-14 4:15	3 [signature]	4	7/31/14 15	4
5 Relinquished by:		5	Custody Seal #	Preserved where applicable	On Ice: X; Cooler Temp.: ; Thermo. Corr. Factor: -1

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Conestoga Rovers & Associates

Date/ Time Received: 07/31/2014 04:15:00 PM

Work Order #: 490523

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)?	-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)?	**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: 07/31/2014

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