### RECEIVED

By Kellie Jones at 1:58 pm, Oct 23, 2015



Robert Speer Portfolio Manager, Upstream Business Unit Remediation Team

Chevron Environmental **Management Company** 1400 Smith St. 07049 Houston, TX 77002 Tel (731) 372-6117 Cell (713) 301-7274 rspeer@chevron.com

# INFORMATION O

October 1, 2015

Kellie Jones Environmental Specialist, District 1 New Mexico Oil Conservation Division<sup>2</sup>. Ensure the State Land Office approves/concurs. 811 South First St.

1. While the OCD agrees that delineation has been achieved, the proposal of no further remediation activities is not warranted at the site. Please submit a work plan on how to address the chlorides at the site.

Re: Vacuum Grayburg West Unit Satellite No. 4 Injection Trunkline Release Soil Assessment and Delineation Activities Report

Dear Ms. Jones:

Artesia, NM 88210

Please find enclosed for your files copies of the following report for the Vacuum Grayburg West Unit Satellite No. 4 Injection Trunkline release project site.

VGWU Satellite 4 Injection Trunkline – 2015 Soil Assessment and Delineation Activities Report, Unit B - Section 1 - Township 18 South - Range 34 East, Lea County, NM

This report was prepared by Conestoga-Rovers & Associates (CRA) on behalf of Chevron Environmental Management Company (CEMC) to document assessment activities for a release of 29 bbls of produced water as documented in our March 2009 submittal of form C-141. Soil sampling in the release area indicate that vertical and horizontal delineation of Chlorides have been achieved at the site, and that no further assessment or remediation activities are warranted for this project.

Should you have any questions regarding the content of this report, please do not hesitate to contact me. I look forward to working with you in the future.

Sincerely,

Environmental Project Manager

<u>District I</u> 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

Form C-141 Revised August 8, 2011

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

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

			Rele	ease Notific	ation	and Co	rrective A	ction						
				76		<b>OPERA</b>	ΓOR	☐ Ini	tial Report     Final Report					
Name of Co	mpany: Cl	nevron (CEN	1C)			Contact: Ro								
Address: 14	100 Smith	Street, Hous	ton, Texa	s 77002	1	Telephone No. (713) 372-6117								
Facility Nan	ne: VGWU	J Satellite N	o. 4 Injec	tion Trunkline	I	Facility Type: Water Injection System								
Surface Own	ner: State	of New Me	xico	Mineral O	wner:	: State of New Mexico API No.								
				LOCA	TION	OF REI	LEASE							
Unit Letter B	Section 1	Township 18S	Range 34 E	Feet from the	North/	South Line	Feet from the	East/West Line	County Lea					
	<b>Latitude:</b> 32.782766° <b>Longitude:</b> -103.510673°													
NATURE OF RELEASE														
Type of Relea						Volume of water	Release: 29 bbls		e Recovered: Zero (0)					
Source of Rel	lease: Inject	ion Trunkline				l	our of Occurrenc		d Hour of Discovery:					
Was Immedia	te Notice G	iven?				If YES, To	nd 3:00 AM Whom?	03/06/0	9 and 3:10 AM					
⊠ Yes □						Larry John								
By Whom? L	arry Rideno	ur				Date and Hour: 03/06/09 and 11:58 AM								
Was a Watero	course Reac		Yes 🗵	No		If YES, Volume Impacting the Watercourse.								
If a Watercou	rse was Imp	oacted, Descri	be Fully.*	•										
Describe Cau	se of Proble	m and Remed	lial Action	ı Taken.*										
Injection trun	kline develo	oped a leak. S	ubsequent	ly, the line was sh	ut-in.									
Describe Are	a Affected a	nd Cleanup A	ction Tak	en.*										
							Water ran across	location ESE of	eak origin. No immediate clean-					
up action was	taken; as lo	ocation was o	ccupied by	drilling rig at the	time of	release.								
				f soil sampling ind confirm the exte				ntrations in shall	ow soils. In response, a					
,		-		e provided in the a										
7.1 1	C .11	c .: ·	1		4 4 4	1		1.1	NIMOGD I					
									rsuant to NMOCD rules and eleases which may endanger					
public health	or the envir	onment. The	acceptanc	e of a C-141 repo	rt by the	NMOCD m	arked as "Final R	eport" does not r	elieve the operator of liability					
									ter, surface water, human health					
federal, state,				tance of a C-141 i	eport do	es not reliev	e the operator of i	responsibility for	compliance with any other					
1000101,							OIL CON	SERVATIO	N DIVISION					
Ciamatumor	Kef	5												
Signature:		7				Ammariad has	Environmental S							
Printed Name	: Rob Speei	r				Approved by	Environmentar 5	peciansi.						
Title: Project	Manager				A	Approval Date: E			Expiration Date:					
E-mail Addre	ess: rspeer@	chevron .com	ı			Conditions of	Approval:		Attached					
Date: 9-	30-1	5	Phone:	(713) 372-6117					_					

<sup>\*</sup> Attach Additional Sheets If Necessary













# **Soil Assessment and Delineation Activities Report**

Vacuum Grayburg West Unit Satellite No. 4 Injection Trunkline Release Lea County, New Mexico

Chevron Environmental Management Company



# **Soil Assessment and Delineation Activities Report**

Vacuum Grayburg West Unit Satellite No. 4 Injection Trunkline Release Lea County, New Mexico

Chevron Environmental Management Company

Thomas C. Larson

Principal, Midland Operations Manager

Jake L. Ferenz Project Manager

1755 Wittington Place Suite 500 Dallas Texas USA 074633 | Report No 3 | September 28, 2015

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Appendix B Photograph Log

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Appendix D Soil Laboratory Analytical Reports

### 1. Introduction

GHD is pleased to present this Soil Assessment and Delineation Activities Report to Chevron Environmental Management Company (CEMC) for the Vacuum Grayburg West Unit Satellite No. 4 Injection Trunkline release location (hereafter referred to as the "Site").

### 2. Project Information and Background

The Site is located in Unit B, Section 1, Township 18 South, Range 34 East, approximately 1.38-miles southwest of Buckeye, New Mexico, in eastern Lea County (Figure 1 and Figure 2).

Chevron submitted an initial C-141 Form (Appendix A) to the New Mexico Oil Conservation Division (NMOCD) dated March 6, 2009, describing a release of 29 barrels (bbls) of produced water with zero (0) volume being recovered; stating, "No remediation will be done at this time because drilling rig is operating on location (VGSAU #459)." The source of the release was recorded to have been a "Line Leak", and the release was described as follows:

"Water ran across locations ESE of leak origin....most of leak was on location with the 5x73 and 26x23 areas off location....water ran down 2 rut road."

GHD understands that Crain Environmental (Crain) conducted field assessment activities at the Site in August 2009 through October 2010. Crain's assessment included site visits, soil sample collection, analytical laboratory analyses and preliminary determinations of impacts to environmental media. GHD met with Ms. Crain on April 21, 2011 to review and transfer the file material for the Site as well as to discuss the history of delineation efforts to date for the Site. A soil analytical summary of Crain's initial sample collection is presented as Table 1.

In 2014, Chevron contracted GHD to perform a comprehensive soil assessment at the Site by implementing a soil boring program. A Site visit was performed on March 4, 2014 by GHD. During the Site visit, boring locations were flagged for utility locating purposes. In addition, the Site was walked to observe Site features. On March 11 and 12, 2014, GHD performed a geophysical site survey by way of Ground Penetrating Radar (GPR) to assess the presence of subsurface utility hazards. On March 18, 2014, GHD advanced six soil borings to depths ranging from approximately 35-feet to 50-feet below ground surface (bgs). Results of the 2014 soil boring and sampling program indicated the presence of elevated chloride concentrations in the soil.

In October 2014, GHD prepared and submitted a soil assessment and delineation activities report to CEMC detailing recommendations to further investigate and determine the vertical and horizontal extent of chloride impacts at the Site. CEMC concurred with the recommendations outlined in GHD's 2014 report, thus GHD returned to the Site in 2015 to execute the planned field activities. The results of those activities are provided herein.

### 3. Recommended Remediation Action Limits

Information available on the Petroleum Recovery Research Center (PRRC) Mapping Portal, current (GHD) managed groundwater site(s) data, and the United States Geological Survey (USGS) Current Water Database for the Nation; indicate 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) to be applied to this location by the NMOCD are 10 milligram per kilogram (mg/kg) for benzene; 50 mg/kg for total benzene, toluene, ethylbenzene, and xylenes (BTEX); 5,000 mg/kg for TPH; and an NMOCD accepted 500 mg/kg for chlorides.

### 4. Drilling and Sampling - 2014

On March 11, 2014, GHD's contracted service provider, Harrison & Cooper, Inc. (HCI) of Lubbock, Texas submitted an initial New Mexico One Call utility locate ticket (2014110877). GHD submitted a MCBU Chevron Dig Plan with appropriate attachments for approval to the Chevron Buckeye Field Management Team. On March 18, 2014, GHD and HCI 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. Six soil borings were advanced across the Site covering an approximate area of 182 x 257-feet. Four soil borings were advanced to total depths of 35-feet bgs. Chloride concentrations in soil were field screened by mixing soil samples with distilled water. The rinsate was then screened using Hach chloride test strips to measure chloride concentrations in milligrams per liter (mg/L). This field method led to soil borings (SB-2 and SB-4) being further advanced to 50-feet bgs. Soil borings were logged in accordance with the Unified Soil Classification System and recorded.

Soil samples were collected for laboratory analysis from each boring (SB-1, SB-2, SB-3, SB-4, SB 5 and SB-6) at varying intervals beginning at the surface (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 chloride concentrations by EPA Method E300.0.

### 4.1 Soil Sampling Analytical Results - 2014

The soil type observed in soil samples collected during the drilling program consisted of light gray, dense caliche from the surface to approximately 20-feet bgs. Yellow to orange, very fine grain sandstone with broken caliche was observed from approximately 20-feet to total depth (35 and 50-feet). Moisture content observed in the soil samples was dry in all instances.

Soil boring samples (SB-1, SB-3, SB-5 and SB-6) collected from the Site for laboratory analyses were below the Site RRAL (500 mg/kg) for chloride concentrations. Soil boring samples (SB-2 and SB-4) collected from the Site for laboratory analysis at 50-feet bgs exceeded the Site RRAL for chloride concentrations at 2,700 mg/kg and 1,880 mg/kg, respectively. Soil laboratory analytical results from the 2014 activities are summarized in Table 2.

### 5. Drilling and Sampling - 2015

On August 11, 2015, GHD's contracted service provider, Harrison & Cooper, Inc. (HCI) of Lubbock, Texas submitted an initial New Mexico One Call utility locate ticket (2015331615). GHD submitted a MCBU Chevron Dig Plan with appropriate attachments for approval to the Chevron Buckeye Field Management Team. On August 20-21, 2015, GHD and HCI 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. Three soil borings (SB-7, SB-8, and SB-9) were advanced across the Site. All three soil borings were advanced to total depths of 90-feet bgs to further evaluate the extent of chloride impacts. A photo log documenting the 2014 and 2015 drilling activities is included as Appendix B. Soil borings were logged in accordance with the Unified Soil Classification System and recorded. Visual representation of the 2014 and 2015 boring logs can be found in Appendix C.

Soil samples were collected for laboratory analysis from each boring (SB-7, SB-8, and SB-9) at varying intervals beginning at the surface (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 chloride concentrations by EPA Method E300/300.1. All of the soil laboratory analytical reports (2009 – 2015) are included as Appendix D.

### 5.1 Soil Sampling Analytical Results - 2015

The soil type observed in soil samples collected during the drilling program consisted of pale yellow, dense, weathered and dry caliche from the surface to approximately 15-feet bgs. Yellow to orange, very fine grain sandstone with broken caliche was observed to approximately 20-feet bgs. Dull yellowish orange, very fine grain sand interbedded with moderate to well cemented very fine grain sandstone was observed to approximately 67-feet bgs. Dull yellowish brown very fine grain sand was observed from 67-feet to total depth (90-feet bgs). Moisture content observed in the soil samples was dry in all instances; with the exception of the 67-foot to 90-foot (bgs) interval; which was noted as being moist.

All twenty seven (27) soil samples collected from the Site in 2015 for laboratory analyses were below the Site RRAL (500 mg/kg) for chloride concentrations; with the exception of SB-8 at the 30-foot interval (630 mg/kg) and SB-9 at the 5-foot interval (2540 mg/kg). A soil analytical summary of the 2015 results is presented in Table 3. A Site Details and Analytical Results Map (2009 – 2015) is presented as Figure 3.

### 6. Historical Groundwater Data Review

Currently, GHD monitors two groundwater sites in proximity to the Site. The Buckeye Compressor Station Site located north northeast of the Site, and the Buckeye Vacuum Field Unit Site (AP-104) located east south east of the Site. Upon review of groundwater analytical data pertaining to the Buckeye Compressor Station and Buckeye Vacuum Field Unit, it is suggested that this cross gradient and down gradient monitoring well data can be used in support of assessment/delineation for any potential impacts to groundwater with regard to the Site (Figure 3).

#### **Buckeye Compressor Station Site**

The Buckeye Compressor Station Site is monitored with a network of 28 monitor wells. The Buckeye Compressor Station has two monitor wells (MW-11 and MW-12); which are located in proximity to the Site. Upon review of historical documents associated with the Buckeye Compressor Station, it is noted that MW-11 was destroyed in 2009, and has not monitored by GHD since 2009. In addition MW-12 was damaged in April of 2013, and is no longer monitored by GHD. However, GHD has historical records of (MW-12) groundwater data through October 2013. MW-12 is located down gradient, approximately 300-feet north east of the Site and is visible on Figure 3. Below is a table of (MW-12) historical groundwater data:

Table 6.1 MW-12 Historical Groundwater Data

Well ID	Date	Chloride (mg/L)
MW-12	04/16/09	46.4
MW-12	09/30/09	40.1
MW-12	04/19/11	45.5
MW-12	10/19/11	46.3
MW-12	04/25/12	45.1
MW-12	11/12/12	38.5

### **Buckeye Vacuum Field Unit Site**

The Buckeye Vacuum Field Unit Site (AP-104) is monitored with a network of 13 monitor and recovery wells. The Buckeye Vacuum Field Unit has multiple wells located cross gradient and down gradient (south east) of the Site; however it is noted that monitor well (TW-23) has the most current groundwater data, and is located approximately 592-feet south east of the Site. Below is a table of (TW-23) historical groundwater data:

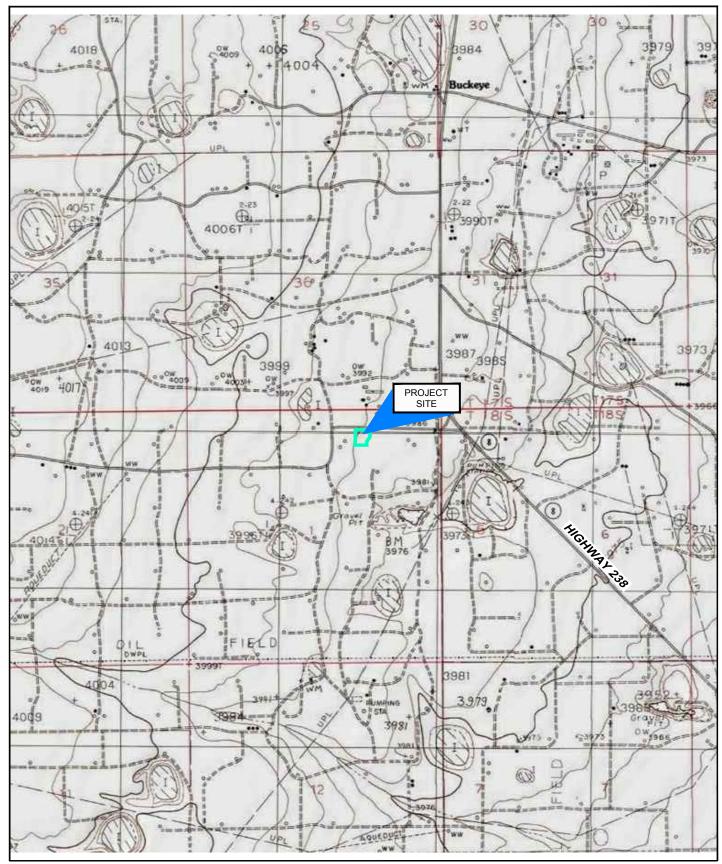
Table 6.2 TW-23 Historical Groundwater Data

Well ID	Date	Chloride (mg/L)
TW-23	4/14/09	53.7
TW-23	10/01/09	42.3
TW-23	05/16/13	28.5
TW-23	10/24/13	64.0
TW-23	2/13/14	75.9
TW-23	5/20/14	105.0
TW-23	8/19/14	127.0

### 7. Conclusions

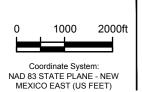
Thorough subsurface investigations have been implemented at the Site. Evaluation of the analytical data obtained from soil assessment and delineation activities performed in March of 2014 and August of 2015 indicates that vertical and horizontal delineation of chloride impacts have been achieved at the Site. Furthermore, groundwater analytical data from up gradient and cross gradient monitoring wells demonstrate chloride concentrations in groundwater to be well below the regulatory threshold. Based on data provided in this report, no further delineation or remedial efforts are warranted at this time.

# **Figures**



Source: USGS 7.5 Minute quad "Buckeye And Lovington SW, New Mexico"

Lat/Long: 32.7827° North, 103.5106° West



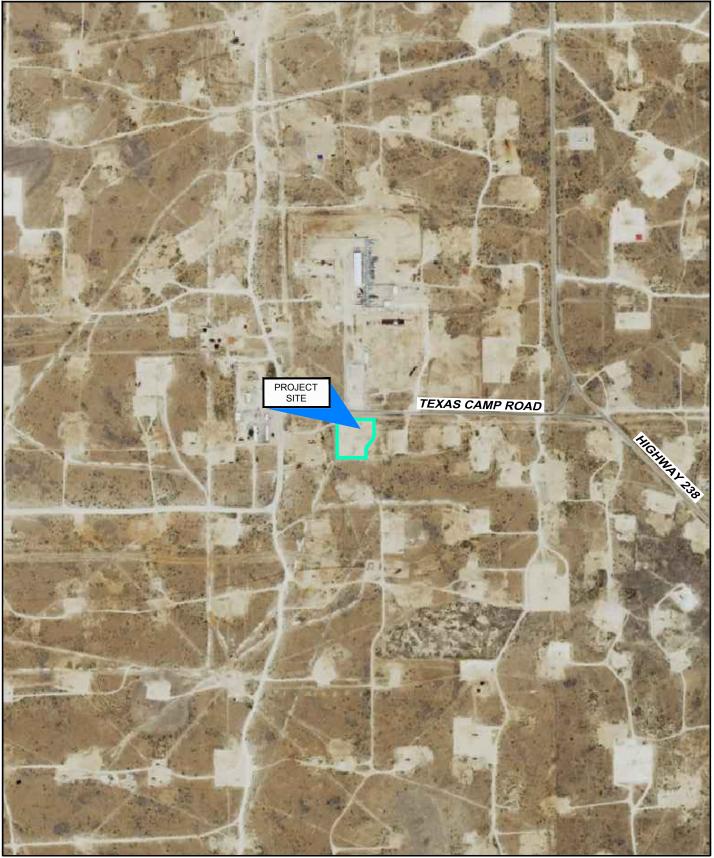




CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY LEA COUNTY, NEW MEXICO VGWU SATELLITE #4 TRUNK LINE 074633-2015 Sep 1, 2015

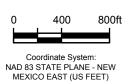
SITE LOCATION MAP

FIGURE 1



Source: USDA FSA Imagery, May 10, 2014

LAT/LONG: 32.7827° NORTH, 103.5106° WEST



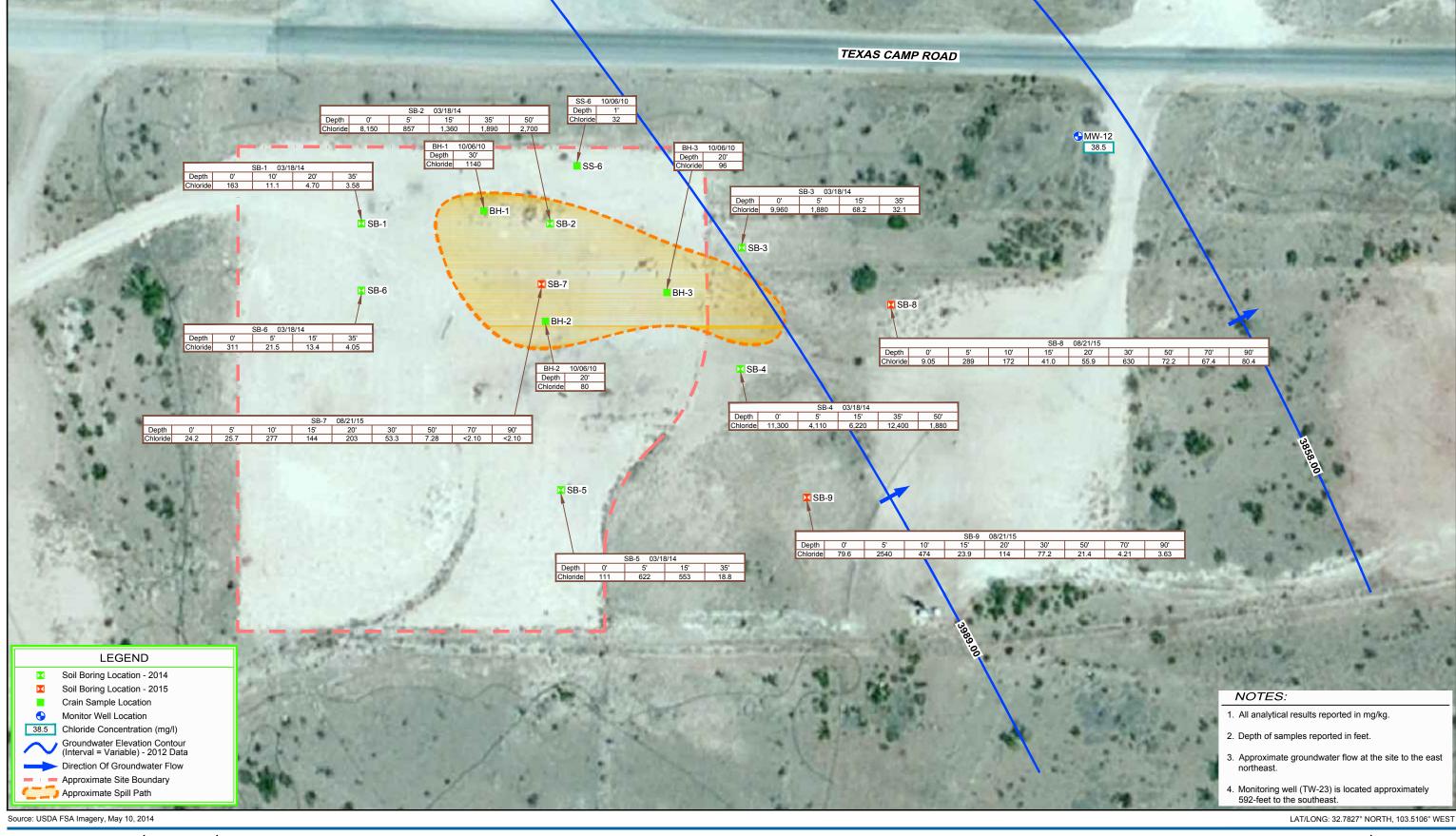




CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY LEA COUNTY, NEW MEXICO VGWU SATELLITE #4 TRUNK LINE 074633-2015 Sep 1, 2015

**AERIAL SITE MAP** 

FIGURE 2



GHD

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY LEA COUNTY, NEW MEXICO VGWU SATELLITE #4 TRUNK LINE 074633-2015 Sep 28, 2015

SITE DETAILS AND ANALYTICAL RESULTS MAP

FIGURE 3

NAD 83 STATE PLANE - NEW

MEXICO EAST (US FEET)

# **Tables**

Table 1 Page 1 of 2

### Soil Analytical Summary- Crain VGWU Satellite No. 4 Injection Trunkline Lea County, New Mexico

NMOCD Recom SS-1 SS-1	mended Remed Levels 8/4/09 9/21/09	diation Action 6"	500
SS-1	8/4/09	CII	/ /I\
SS-1		<b>∠</b> ∥	(mg/kg)
	0/21/00	-	4890
		1'	3400
SS-1	9/21/09	2'	4040
SS-1	9/21/09	2.5'	1880
SS-2	8/4/09	6"	23400
SS-2	9/21/09	1'	1280
SS-2	9/21/09	2'	1180
SS-2	9/21/09	3'	1460
SS-3	8/4/09	6"	15500
SS-3	9/21/09	1'	1380
SS-3	9/21/09	2'	64
SS-3	9/21/09	3'	864
SS-3	9/21/09	4'	1250
SS-4	8/4/09	6"	29400
SS-5	9/21/09	6"	480
SS-5	9/21/09	1'	224
SS-6	9/21/09	6"	64
SS-6	9/21/09	1'	32
SS-7	9/21/09	6"	480
SS-7	9/21/09	1'	32

Table 1 Page 2 of 2

### Soil Analytical Summary- Crain VGWU Satellite No. 4 Injection Trunkline Lea County, New Mexico

Sample ID	Sample Date	Depth (bgs)	Chlorides (mg/kg)											
NMOCD Reco	NMOCD Recommended Remediation Action													
	Levels		(mg/kg)											
BH-1	10/6/10	5-6'	1520											
BH-1	10/6/10	10-11'	736											
BH-1	10/6/10	15-16'	528											
BH-1	10/6/10	20-21'	1520											
BH-1	10/6/10	25-26'	2360											
BH-1	10/6/10	30-31'	1140											
BH-2	10/6/10	5-6'	160											
BH-2	10/6/10	10-11'	304											
BH-2	10/6/10	15-16'	96.0											
BH-2	10/6/10	20-21'	80.0											
BH-3	10/6/10	5-6'	576											
BH-3	10/6/10	10-11'	640											
BH-3	10/6/10	15-16'	144											
BH-3	10/6/10	20-21'	96.0											

#### Notes:

- 1. All analytical results reported in (mg/kg) milligrams per kilogram
- 2. Chloride analyses by EPA Method E300.0
- 3. Highlighted cells indicate concentrations exceeding guidance RRALs
- 4. bgs below ground surface
- 5. Depth of samples reported in inches and feet

Table 2

### Soil Analytical Summary - 2014 VGWU Satellite No. 4 Injection Trunkline Lea County, New Mexico

Sample ID	Sample Date	Depth (bgs)	Chlorides (mg/kg)
NMOCD Reco	mmended Remed	diation Action	500
	(mg/kg)		
SB-1	3/18/14	0'	163
SB-1	3/18/14	10'	11.1
SB-1	3/18/14	20'	4.7
SB-1	3/18/14	35'	3.58
SB-2	3/18/14	0'	8150
SB-2	3/18/14	5'	857
SB-2	3/18/14	15'	1360
SB-2	3/18/14	35'	1890
SB-2	3/18/14	50'	2700
SB-3	3/18/14	0'	9960
SB-3	3/18/14	5'	1880
SB-3	3/18/14	15'	68.2
SB-3	3/18/14	35'	32.1
SB-4	3/18/14	0'	11300
SB-4	3/18/14	5'	4110
SB-4	3/18/14	15'	6220
SB-4	3/18/14	35'	12400
SB-4	3/18/14	50'	1880
SB-5	3/18/14	0'	111
SB-5	3/18/14	5'	622
SB-5	3/18/14	15'	553
SB-5	3/18/14	35'	18.8
SB-6	3/18/14	0'	311
SB-6	3/18/14	5'	21.5
SB-6	3/18/14	15'	13.4
SB-6	3/18/14	35'	4.05

#### Notes:

- 1. All analytical results reported in (mg/kg) milligrams per kilogram
- 2. Chloride analyses by EPA Method E300.0
- 3. Highlighted cells indicate concentrations exceeding guidance RRALs
- 4. bgs below ground surface
- 5. Depth of samples reported in feet

Table 3

### Soil Analytical Summary - 2015 VGWU Satellite No. 4 Injection Trunkline Lea County, New Mexico

Sample ID	Sample Date	Depth (bgs)	Chlorides (mg/kg)
NMOCD Reco	mmended Remed Levels	diation Action	500
	(mg/kg)		
SB-7	8/21/15	0	24.2
SB-7	8/21/15	5	25.7
SB-7	8/21/15	10	277
SB-7	8/21/15	15	144
SB-7	8/21/15	20	203
SB-7	8/21/15	30	53.3
SB-7	8/21/15	50	7.28
SB-7	8/21/15	70	<2.10
SB-7	8/21/15	90	<2.10
SB-8	8/21/15	0	9.05
SB-8	8/21/15	5	289
SB-8	8/21/15	10	172
SB-8	8/21/15	15	41.0
SB-8	8/21/15	20	55.9
SB-8	8/21/15	30	630
SB-8	8/21/15	50	72.2
SB-8	8/21/15	70	67.4
SB-8	8/21/15	90	80.4
SB-9	8/21/15	0	79.6
SB-9	8/21/15	5	2540
SB-9	8/21/15	10	474
SB-9	8/21/15	15	23.9
SB-9	8/21/15	20	114
SB-9	8/21/15	30	77.2
SB-9	8/21/15	50	21.4
SB-9	8/21/15	70	4.21
SB-9	8/21/15	90	3.63

### Notes:

- 1. All analytical results reported in (mg/kg) milligrams per kilogram
- 2. Chloride analyses by EPA Method E300.0
- 3. Highlighted cells indicate concentrations exceeding guidance RRALs
- 4. bgs below ground surface
- 5. Depth of samples reported in feet
- 6. '<' Indicates laboratory detection was below the reporting limit

Appendices

Appendix A
Original Form C-141

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

### State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised October 10, 2003 bmit 2 Copies to appropriate

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 Co	mpany Ch	evron USA			(	Contact Larry Ridenour								
		423 Loving	ton, N.M	, 88260	1	Telephone No. 505-396-4414 X 102								
Facility Nan	ne VGW(	J Sat 4 Inj tr	unk line		1	Facility Type Water injection system								
Surface Ow	ner State	of NM		Mineral O	wner S	tate of NM			Lease N	lo. B-155	marries and debt of the			
	### <u></u>			LOC	ATIO	N OF RI	CLEASE							
Unit Letter	Section	Township	Range	Feet from the	South I		Feet from the	County						
В	1	188	34E		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	*****	K WWF 31 W 411	East L		Lea				
Latitude N 32 deg 46.825 min Longitude W 103 deg 30.717 min  NATURE OF RELEASE  API #not assoc with a well												vell		
Type of Rele	ase Produ	ced water				Volume of 29 BW	Release		Volume R 0 Oil	tecovered 0 BW				
Source of Re	lease Injo	ection trunk lin	ne			Date and I-	lour of Occurrenc	e	Date and	Hour of Disc	overy	/		
						3/6/09 3:0			3/6/08 3:	10 am				
Was Immedia	ate Notice (		Yes [	] No 🔲 Not Ro	quired	If YES, To Larry John	whom? son (left message	<del>:</del> )						
By Whom?	Larry Ride	**************************************				Date and I	lour 3/6/09 11	:58AM	***************************************	**************************************				
Was a Water							olume Impacting t		ercourse.					
,, <b></b>			Ycs 🗵	] No										
If a Watercou	If a Watercourse was Impacted, Describe Fully.*													
D 3. C	Describe Cause of Problem and Remedial Action Taken.*													
Line develop			uiai Acuo	ni Taken.										
Chlorides 65	000													
Area divided location with	l into 4 area the 5x73 a	nd 26x23 area	ment. 52 s off loca	ken.* ' x 36', 24' x 52', tion. Water ran do it plan will be subr	wn 2 rut	road. No re	. Water ran acros mediation will be	s location done at	on ESE of l this time b	cak origin. I ecause drilli	Most (	of leak was on ; is operating		
regulations a public health should their or or the enviro	II operators or the envi operations I nment. In a	are required to ronment. The	o report a e acceptan adequately OCD accep	e is true and comp nd/or file certain r ce of a C-141 repo y investigate and r ptance of a C-141	elease ne ort by the emediate	otifications a NMOCD m contaminat	nd perform correc narked as "Final R ion that pose a thr	ctive act (eport" ( reat to g	ions for rel does not rel round wate	eases which ieve the oper r, surface wa	may c rator o iter, h	endanger of liability uman health		
errycynnysynys <u>i i d</u> eddod <del>ala</del> te Aran Aran Aran Aran Aran Aran Aran Aran						OIL CONSERVATION DIVISION								
Signature:														
Printed Nam	e: Larry Ric	lenour				Approved by District Supervisor:								
Title: Produc		Contract (				Approval Da	te:	Expiration Date:						
E-mail Addr		nour@chevro	n.com			Conditions of Approval:				Attached				
Date: 3/6/09	)	PI	hone: 396	-4414 X 102										

<sup>\*</sup> Attach Additional Sheets If Necessary

Appendix B Photograph Log



Photo 1 – View of 2014 Ground Penetrating Radar (GPR) survey markings facing southwest



Photo 2 – View of 2014 GPR survey markings facing north



## **Site Photographs**



Photo 3 – View of 2014 borehole clearance activities facing north



Photo 4 – View of 2014 drilling activities facing southwest



## **Site Photographs**



Photo 3 – View of 2015 drilling activities facing southeast



Photo 4 – View of 2015 drilling activities facing east



## **Site Photographs**

# Appendix C Soil Boring Logs

**SOIL BORING LOG** Project: VGWU Sat-4 Trunk Line File No.: 74633 Lea County, New Mexico Date: Drilling Co.: SB-1 Harrison & Cooper, Inc. No. Supervisor: Kenny Cooper Type Rig: Client: CEMC Air/Mud Rotary Logged by: John Fergerson LABORATORY TEST DATA FIELD DATA **BORING DATA** Results Reported in mg/kg Screen Interval Photo-Water Level Ionization Depth Total TPH (C6-C35) Ethyl-benzene Chlorides Benzene Toluene Xylenes Detection (feet) Reading (ppm) Start Time: 09:03 Finish Time: 10:05 Pad Material/Caliche: light gray, broken-crushed, dry 5 Caliche: light gray, dense-weathered, dry 15 -20 Sand: light yellow/orange, very fine grain, unconsilidated, interbedded with well cemented very fine grain sanstone, borken caliche in matrix, dry 25 30 Total Depth = 35-Feet 35 Water First Noted XStratification is Inferred And May Not be Exact. Sampling Interval Soil Classification Based on Visual-Manual Procedure Analyzed Sample

						SOIL	BC	ORING LO	)G	ì	
	VGWU Sa Lea Count						No.	SB-2			File No.: 74633 Date: Drilling Co.: Harrison & Cooper, Inc.
Client:	CEMC									Supervisor:       Kenny Cooper         Type Rig:       Air/Mud Rotary         Logged by:       John Fergerson	
LABORATORY TEST DATA						FIE	LD [	DATA			BORING DATA
	Resu	ults Report	ed in mg/kg			Photo-	Э		/el	rval	
Benzene	Toluene	Ethyl- benzene	Xylenes	Total TPH (C6-C35)	Chlorides	lonization Detection Reading (ppm)		Depth (feet)	Water Level	Screen Interval	
_							$\times$				Pad Material/Caliche: light gray, broken-crushed, dry
								- 10 20 25 30 35			Caliche: light gray, dense-weathered, dry  Caliche: pale yellow, weathered-dense, interbedded with very fine grain sand, dry  Sand: light yellow, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone, borken caliche in matrix, dry  Sand: light yellow, very fine grain, unconsolidated, interbedded with moderate-well cemented very fine grain sandstone, dry
	Sampling	Interval			Se	Stratification is In oil Classification Ba	ferre ased	d And May Not on Visual-Manu	be E	Exact	et. edure  Water First Noted Analyzed Sample

							-	RING L	UG	,		
Project: Client:		at-4 Trunk I ty, New Me				No. SB-2					File No.: 74633  Date:  Drilling Co.: Harrison & Cooper, Inc.  Supervisor: Kenny Cooper  Type Rig: Air/Mud Rotary Logged by: John Fergerson	
	LABC	DRATORY	TEST DAT	A		FIEI	_D C	DATA			BORING DATA	٦
	Resi	ults Report	ed in mg/kg			Photo-			<u>-</u>	val		
Benzene	Toluene	Ethyl- benzene	Xylenes	Total TPH (C6-C35)	Chlorides	lonization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 10:44 Finish Time: 11:44	
_											Sand: yellow/orange, very fine grain, unconsolidated, interbedded with slight-moderate cemented very fine grain sandstone, dry	4
-											with slight-moderate cemented very line grain salidatone, dry	-
<b>-</b> -												1
<u>-</u>								<del>-</del> 45 <del></del>			<u>_</u>	
-								10				-
-												-
<del>-</del> -												]
_							$\boxtimes$	<del>-(50)</del>			Total Depth = 50-Feet	_
-												4
<del>-</del> -												
-												_
_								<del>-</del> 55 <del></del>			-	-
_												٦
-												
-												4
_								<del>-</del> 60 <del></del>				٦
- -												
_												4
-												4
<del>_</del> -								<del>-</del> 65 <del></del>				1
_												
_												4
-								70				1
<del>-</del>								<del>- 70</del>				
-												4
_												-
<u>-</u>								<del>-</del> 75 <del></del>			_	
-												4
-												1
-												
	<u> </u>							<del>-</del> 80 <del></del>				4
	Sampling	Interval			Sc	Stratification is In oil Classification Ba	ferred sed	d And May Not	t be E ual P	Exact Proce	t.   \qu	

						SOIL	BC	DRING LO	OG	<del></del>	
Project: Client:		at-4 Trunk L ty, New Me			No. SB-3					File No.: 74633  Date:  Drilling Co.: Harrison & Cooper, Inc.  Supervisor: Kenny Cooper  Type Rig: Air/Mud Rotary	
											Logged by: John Fergerson
LABORATORY TEST DATA						FIE	LD [	DATA			BORING DATA
	Resu	ults Reporte	ed in mg/kg			Photo-	βL		vel	erval	
Benzene	Toluene	Ethyl- benzene	Xylenes	Total TPH (C6-C35)	Chlorides	lonization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 12:13 Finish Time: 12:22
	·						$\times$				Top Soil: Sandy Silt, grayish yellow, unconsolidated, dry
								- 10 — - 15 — - 20 — - 25 — - 30 —			Caliche: light gray, dense-weathered, dry  Caliche: pale yellow, weathered-dense, interbedded with very fine grain sand, dry  Sand: light yellow/orange, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone, broken caliche in matrix, dry  Sand: yellow/orange, very fine grain, unconsolidated, interbedded with moderate-well cemented very fine grain sandstone, dry. Total Depth = 35-Feet
	Sampling	Interval			Si	Stratification is In oil Classification Ba	ferre ased	40 ad And May Not on Visual-Manu	be Eual P	Exact	. \sum_= Water First Noted dure \sum_= Analyzed Sample

						SOII	BC	ORING LO	OG		1
. ,	VGWU Sa Lea Count						No.	SB-4			File No.: 74633  Date: Drilling Co.: Harrison & Cooper, Inc.
Client:	CEMC										Supervisor:Kenny CooperType Rig:Air/Mud RotaryLogged by:John Fergerson
	LABC	RATORY	TEST DAT	'A		FIE	LD I	DATA			BORING DATA
	Resu	ults Report	ed in mg/kg			Photo-	Э		/el	rval	
Benzene	Toluene	Ethyl- benzene	Xylenes	Total TPH (C6-C35)	Chlorides	lonization Detection Reading (ppm)		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Water Level	Screen Interval	Start Time: 12:48 Finish Time: 13:27
_							X				Top Soil: Sandy Silt, grayish yellow, unconsolidated, dry
-											-
-											
							X	5			Ц
F											-
-											
_								<del>-</del> 10 <del></del>			Caliche: light gray, dense-weathered, dry
<u> </u>											
Ľ											
F											-
_							$\times$	-15			H
F											Caliche: pale yellow, weathered-dense, interbedded with very fine grain sand, dry
_								<del>-</del> 20 <del></del>			
											Sand: light yellow/orange, very fine grain, unconsolidated,
F											interbedded with well cemented very fine grain sandstone, broken caliche in matrix, dry
-											
								<del>-</del> 25 <del></del>			
L											-
F											-
								- 30			<u>[</u>
F								- 30			-
F											Sand: yellow/orange, very fine grain, unconsolidated, interbedded
											with moderate-well cemented very fine grain sandstone, dry
_							X	-(35)			Ц
-											
ļ.											
						<u> </u>		L 40			
	Sampling	Interval			S	Stratification is In oil Classification Ba	ferre ased	ed And May Not on Visual-Man	be E ual P	Exact	. Water First Noted dure  Analyzed Sample

	SOIL BORING LOG												
Project:	VGWU Sa Lea Count						No.	SB-4			File No.: 74633  Date:  Drilling Co.: Harrison & Cooper, Inc.		
Client:	CEMC										Supervisor: Kenny Cooper Type Rig: Air/Mud Rotary Logged by: John Fergerson		
			TEST DAT. ed in mg/kg			FIE	LD [	DATA		Г	BORING DATA		
	Kest	ans Report	eu iii iiig/kg			Photo-	ng		evel	terva			
Benzene	Toluene	Ethyl- benzene	Xylenes	Total TPH (C6-C35)	Chlorides	Photo- lonization Detection Reading (ppm)	Sampli	Depth (feet)	Water Level	Screen Interval	Start Time: 12:48 Finish Time: 13:27		
<u> </u>	F	ша	×	1)	0					S	Sand: yellow/orange, very fine grain, unconsolidated, interbedded		
<del>-</del> -											with slight-moderate cemented very fine grain sandstone, dry		
-											-		
-											-		
_								<del>-</del> 45 <del></del>					
- -													
-											-		
-							$\boxtimes$	(50)			Total Depth = 50-Feet		
<del>-</del>								_50)					
-											-		
-													
<del>-</del> —								– 55 —			l J		
_								33					
-											-		
-													
<del>-</del>								<del>-</del> 60 <del></del>					
-											-		
-													
<del>-</del> -													
_								<del>-</del> 65 <del></del>			l H		
-											-		
<b>-</b>													
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_								<del>-</del> 70 <del></del>			l H		
-													
<b>-</b> -													
_											-		
_								<del>-</del> 75 <del></del>			H		
<del>-</del> -											] []		
- -													
<del>-</del>											-		
								80 —			Water First Nated		
	Sampling	Interval			So	Stratification is In il Classification Ba	ferre ased	d And May No on Visual-Man	t be E ual P	Exact	t.		

						SOIL	BC	RING LO	) OG	<u> </u>	
Project: Client:		at-4 Trunk I ty, New Me					No.	SB-5			File No.: 74633  Date: Drilling Co.: Harrison & Cooper, Inc.  Supervisor: Kenny Cooper  Type Rig: Air/Mud Rotary
											Logged by: John Fergerson
			TEST DAT			FIE	LD [	DATA			BORING DATA
	Resu	ults Reporte	ed in mg/kg			Photo-	βL		svel	erval	
Benzene	Toluene	Ethyl- benzene	Xylenes	Total TPH (C6-C35)	Chlorides	lonization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 13:43 Finish Time: 13:54
_	·						X				Pad Material/Caliche: light gray, broken-crushed, dry
								- 10 15 20 25 30 35 35			Caliche: light gray, dense-weathered, dry  Sand: light yellow/orange, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone, broken caliche in matrix, dry  Sand: yellow/orange, very fine grain, unconsolidated, interbedded with moderate-well cemented very fine grain sandstone, dry. Total Depth = 35-Feet
	Sampling	Interval			S	Stratification is In oil Classification Ba	ferre	d And May Not on Visual-Manu	be E	Exact	Analyzed Sample

						SOIL	BC	RING LO	) OG	<u> </u>	
Project: Client:		at-4 Trunk I ty, New Me					No.	SB-6			File No.: 74633  Date: Drilling Co.: Harrison & Cooper, Inc.  Supervisor: Kenny Cooper  Type Rig: Air/Mud Rotary
											Logged by: John Fergerson
			TEST DAT			FIE	LD [	DATA			BORING DATA
	Resu	ults Reporte	ed in mg/kg			Photo-	βι		vel	erval	
Benzene	Toluene	Ethyl- benzene	Xylenes	Total TPH (C6-C35)	Chlorides	Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 14:17 Finish Time: 14:26
							X				Pad Material/Caliche: light gray, broken-crushed, dry
								- 10 15 20 25 30 35 35			Caliche: light gray, dense-weathered, dry  Sand: light yellow/orange, very fine grain, unconsolidated, interbedded with well cemented very fine grain sandstone, broken caliche in matrix, dry  Sand: yellow/orange, very fine grain, unconsolidated, interbedded with moderate-well cemented very fine grain sandstone, dry. Total  Depth = 35-Feet
	Sampling	Interval			S	Stratification is In oil Classification Ba	ferre ased	40 — 40 ded And May Not on Visual-Manu	be E	Exact	oct.  Dedure  Water First Noted  Analyzed Sample

# GHD

### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-7

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

FIELD PERSONNEL: J. Fergerson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH ft BGS	(ff)		SAMP €		Γ
				DEРТН (ft)	INTERVAL	REC (ft)	nscs	
	Well Pad Material, crushed caliche mixed with sand, slightly moist	0:56						T
		000						
2	CALIGUE		2.00					
	CALICHE, pale yellow, dense-weathered, dry				AIR	1.0		
					V			
•								
					AIR	1.0		
		Δ <i>Δ</i>						
					V			
0								
		Δ Δ						
2								
					AIR	1.0		
4		Δ Δ			Y			
	becomes light yellowish orange, weathered-dense, interbedded with poor-moderately cemented very fine grained sandstone							
_	poor-moderately cemented very fine grained sandstone							
6								
						4.0		
8		Δ Δ			AIR	1.0		
					Y			
20								
		△ ∠						
22	SAND, dull yellowish orange, very fine grained, unconsolidated with broken		22.00		AIR	1.0	SP	
	caliche in matrix, interbedded with poor-moderately cemented very fine grained, sandston, dry					0		
.								
24					Ĭ			
N	OTES:	[3.454]			Ц		L	上

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

PROJECT NUMBER: 074633

CLIENT: CEMC

LOCATION: Lea County, New Mexico

HOLE DESIGNATION: SB-7

DATE COMPLETED: August 21, 2015

DRILLING METHOD: Air Rotary

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	t)		SAMF	PLE	1
			DEPTH (ft)	INTERVAL	REC (ft)	nscs	
26				AIR	1.0		
30				Y	1.0		
32				AIR	1.0		
34				<b>Y</b>			
36				AIR	1.0		
40				<b>Y</b>			
42				AIR	1.0		
44				<b>Y</b>			
48				AIR	1.0		
NOTES:		<u> </u>				Page	<u> </u>

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-7

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	S	DEPTH ft BGS	ft)		SAMF		
				DEPTH (ft)	INTERVAL	REC (ft)	nscs	
52		1				4.0		
					AIR	1.0		
E 4		100 miles 100 miles						
54		11 (c. 1) 13 (c. 1) 13 (c. 1)			Y			
56								
		# # # # # # # # # # # # # # # # # # #			AIR	1.0		
58								
					<b>V</b>			
60								
		######################################						
		1993 1993						
62					AIR	1.0		
					ain	1.0		
64								
66								
	becomes dull yellowish brown, moist							
30					AIR	1.0		
68								
					1			
70								
		[변호 전 변경] 변경]						
72		변 변경 전 전 전 전 전 전 전 전 전			AIR	1.0		
74								
<u>N</u> (	OTES:						Page	

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-7

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS				MPLE		
11 200		11 200	DEPTH (ft)	INTERVAL	REC (ft)	SOSO		
- -76 -								
-78				AIR	1.0			
-80								
-82				AIR	1.0			
86								
88				AIR	1.0			
90 -	BOREHOLE TERMINATED @ 90.0ft BGS	90.00		<b>Y</b>				
92								
94								
96								
- 98								
1	NOTES:					Page	4 0	

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-8

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

EPTH BGS	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH ft BGS	(£)		SAMP	
				DEPTH (ft)	INTERVAL	REC (ft)	nscs
	Clayey SILT, dull brown, broken caliche in matrix, slightly moist						ML
	CALICHE, light gray, dense-weathered, dry		1.00				
2							
					AIR	1.0	
					V		
6		ΔΔ					
						4.0	
,					AIR	1.0	
					ľ		
0							
2							
2					AIR	1.0	
4					W		
6							
8	becomes light yellowish orange, weathered-dense, interbedded with poor to				AIR	1.0	
	moderately cemented very fine grained sandstone, dry						
					ľ		
0	SAND, dull vellowish orange, very fine grained, unconsolidated with broken		20.00				SP
	SAND, dull yellowish orange, very fine grained, unconsolidated with broken caliche in matrix, interbedded with poor-moderately cemented very fine grained sandstone, dry						
2					AIR	1.0	
4							
NO	OTES:						

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-8

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	L)		SAMF		Τ
			DЕРТН (ft)	INTERVAL	REC (ft)	nscs	
26	becomes moderate to well cemented			AIR	1.0		
30				Y			
32				AIR	1.0		
36							
38				AIR	1.0		
42				AIR	1.0		
44				Y			
48				AIR	1.0		
NC	DTES:					Page	

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-8

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	æ		SAMF		
			DEPTH (ft)	INTERVAL	REC (ft)	nscs	
52				AIR	1.0		
54				Y			
56							
58				AIR	1.0		
60				<b>Y</b>			
62				AIR	1.0		
64				¥			
66	becomes dull yellowish brown, slightly moist						
68				AIR	1.0		
				Y			
70							
72				AIR	1.0		
74	NOTES:			Y			

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-8

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS			SAMF	PLE	_
11 11 11 11 11 11 11 11 11 11 11 11 11		11 11 11 11 11 11 11 11 11 11 11 11 11	DEPTH (ft)	INTERVAL	REC (ft)	nscs	
76	becomes moist						
78				AIR	1.0		
80							
84				AIR	1.0		
86							
88				AIR	1.0		
90	BOREHOLE TERMINATED @ 90.0ft BGS	90.00					
92							
94							
96							
98							
NC	DTES:	<u> </u>	1	1	<u> </u>	Page	

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-9

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH ft BGS	£		SAMP		Т
				DEPTH (ft)	INTERVAL	REC (ft)	nscs	
	Clayey SILT, dull brown, broken caliche in matrix, slightly moist						ML	$\dagger$
	CALICHE, light gray, dense-weathered, dry		1.00					
2								
		Δ Δ			AIR	1.0		
4					V			
6								
					AIR	1.0		
-8								
					J.			
40					1			
10		<u>\</u>						
12								
12					AIR	1.0		
		Δ Δ						
-14								
					1			
16		Δ Δ						
					AIR	1.0		
18	becomes light yellowish orange, weathered-dense, interbedded with poor to moderately cemented very fine grained sandstone, dry							
	moderately cemented very line grained samustone, dry	Δ Δ						
					1			
20	SAND, dull yellowish orange, very fine grained, unconsolidated with broken caliche in matrix, interbedded with poor-moderately cemented very fine grained		20.00				SP	
	caliche in matrix, interbedded with poor-moderately cemented very fine grained sandstone, dry							
22					AIR	1.0		
24								
	OTES:	1. 7. 7.					L	丄

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-9

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	<u> </u>		SAMF		
			DEРТН (ft)	INTERVAL	REC (ft)	nscs	
26							
28	becomes moderate to well cemented			AIR	1.0		
30							
32							
				AIR	1.0		
34							
36							
38				AIR	1.0		
40							
	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1						
42							
				AIR	1.0		
44							
46							
.	[						
48				AIR	1.0		
		:					
1	NOTES:					Pag	

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-9

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	æ		SAMF		
			DEPTH (ft)	INTERVAL	REC (ft)	nscs	
52				AIR	1.0		
54				Y			
56							
58				AIR	1.0		
60				<b>Y</b>			
62				AIR	1.0		
64				¥			
66	becomes dull yellowish brown, slightly moist						
68				AIR	1.0		
				Y			
70							
72				AIR	1.0		
74	NOTES:			Y			

#### STRATIGRAPHIC LOG

PROJECT NAME: Satellite No. 4 Trunkline (CVU # 439)

HOLE DESIGNATION: SB-9

PROJECT NUMBER: 074633

DATE COMPLETED: August 21, 2015

CLIENT: CEMC

DRILLING METHOD: Air Rotary

LOCATION: Lea County, New Mexico

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	æ		SAMF	PLE	
			DEPTH (ft)	INTERVAL	REC (ft)	nscs	
· 76	becomes moist						
78				AIR	1.0		
80							
82				AIR	1.0		
86							
88				AIR	1.0		
90	BOREHOLE TERMINATED @ 90.0ft BGS	90.00					
92							
94							
96							
98							
N	OTES:				<u> </u>	Page	

# Appendix D Soil Laboratory Analytical Reports

#### **Analytical Report 514047**

for GHD Services, INC- Midland

Project Manager: Jacob Ferenz VGSAU #439 074633

31-AUG-15

Collected By: Client





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

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054) Oklahoma (9218)

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)





31-AUG-15

Project Manager: **Jacob Ferenz GHD Services, INC- Midland**2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): 514047

VGSAU #439 Project Address: 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) 514047. 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. 514047 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, Morah

**Kelsey Brooks** 

Project Manager

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

Certified and approved by numerous States and Agencies.

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#### **Sample Cross Reference 514047**



#### $GHD\ Services,\ INC\mbox{-}\ Midland,\ Midland,\ TX$

VGSAU #439

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SB-7-074633-JR 0'	S	08-21-15 09:10	- 0 ft	514047-001
SB-7-074633-JR 5'	S	08-21-15 09:15	- 5 ft	514047-002
SB-7-074633-JR 10'	S	08-21-15 09:20	- 10 ft	514047-003
SB-7-074633-JR 15'	S	08-21-15 09:25	- 15 ft	514047-004
SB-7-074633-JR 20'	S	08-21-15 09:30	- 20 ft	514047-005
SB-7-074633-JR 30'	S	08-21-15 09:35	- 30 ft	514047-006
SB-7-074633-JR 50'	S	08-21-15 09:40	- 50 ft	514047-007
SB-7-074633-JR 70'	S	08-21-15 09:45	- 70 ft	514047-008
SB-7-074633-JR 90'	S	08-21-15 09:50	- 90 ft	514047-009
SB-8-074633-JR 0'	S	08-21-15 09:55	- 0 ft	514047-010
SB-8-074633-JR 5'	S	08-21-15 10:00	- 5 ft	514047-011
SB-8-074633-JR 10'	S	08-21-15 10:05	- 10 ft	514047-012
SB-8-074633-JR 15'	S	08-21-15 10:10	- 15 ft	514047-013
SB-8-074633-JR 20'	S	08-21-15 10:15	- 20 ft	514047-014
SB-8-074633-JR '30	S	08-21-15 10:20	- 30 ft	514047-015
SB-8-074633-JR 50'	S	08-21-15 10:25	- 50 ft	514047-016
SB-8-074633-JR 70'	S	08-21-15 10:30	- 70 ft	514047-017
SB-8-074633-JR 90'	S	08-21-15 10:35	- 90 ft	514047-018
SB-9-074633-JR 0'	S	08-21-15 10:40	- 0 ft	514047-019
SB-9-074633-JR 5'	S	08-21-15 10:45	- 5 ft	514047-020
SB-9-074633-JR 10'	S	08-21-15 10:50	- 10 ft	514047-021
SB-9-074633-JR 15'	S	08-21-15 10:55	- 15 ft	514047-022
SB-9-074633-JR 20'	S	08-21-15 11:00	- 20 ft	514047-023
SB-9-074633-JR 30'	S	08-21-15 11:05	- 30 ft	514047-024
SB-9-074633-JR 50'	S	08-21-15 11:10	- 50 ft	514047-025
SB-9-074633-JR 70'	S	08-21-15 11:15	- 70 ft	514047-026
SB-9-074633-JR 90'	S	08-21-15 11:20	- 90 ft	514047-027



#### **CASE NARRATIVE**



Client Name: GHD Services, INC- Midland

Project Name: VGSAU #439

 Project ID:
 074633
 Report Date:
 31-AUG-15

 Work Order Number(s):
 514047
 Date Received:
 08/21/2015

Sample receip	t non conformanc	es and comme	nts:	
Sample receip	t non conformanc	es and comme	nts per sample:	
None				



**Project Location:** NM

#### Certificate of Analysis Summary 514047

#### GHD Services, INC- Midland, Midland, TX

Project Name: VGSAU #439



**Project Id:** 074633

Contact: Jacob Ferenz

Date Received in Lab: Fri Aug-21-15 04:15 pm

**Report Date:** 31-AUG-15 Project Manager Kalsay Brook

								Project Mar	nager:	Kelsey Brooks	3		
	Lab Id:	514047-0	001	514047-0	02	514047-0	03	514047-0	004	514047-0	05	514047-0	006
Analusia Daguastad	Field Id:	SB-7-074633	3-JR 0'	SB-7-074633	-JR 5'	SB-7-074633-	JR 10'	SB-7-074633	-JR 15'	SB-7-074633-	JR 20'	SB-7-074633-	JR 30'
Analysis Requested	Depth:	0 ft		5 ft		10 ft		15 ft		20 ft		30 ft	
	Matrix:	SOIL	,	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-21-15	09:10	Aug-21-15 (	09:15	Aug-21-15 (	9:20	Aug-21-15	09:25	Aug-21-15 (	09:30	Aug-21-15 (	09:35
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-26-15	17:00	Aug-27-15	15:30	Aug-27-15 1	5:30	Aug-27-15	15:30	Aug-27-15	15:30	Aug-27-15	15:30
	Analyzed:	Aug-28-15	12:04	Aug-29-15 (	02:51	Aug-29-15 (	3:36	Aug-29-15	03:59	Aug-29-15 (	04:21	Aug-29-15 (	04:44
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		24.2	2.34	25.7	2.12	277	10.5	144	10.8	203	21.3	53.3	2.13
Percent Moisture	Extracted:												
	Analyzed:	Aug-27-15	17:30	Aug-27-15	17:30	Aug-27-15 1	7:30	Aug-27-15	17:30	Aug-27-15	17:30	Aug-27-15	17:30
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		14.4	1.00	5.51	1.00	4.79	1.00	7.28	1.00	5.99	1.00	5.92	1.00

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

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Kelsey Brooks Project Manager



**Project Location:** NM

#### **Certificate of Analysis Summary 514047**

#### GHD Services, INC- Midland, Midland, TX

Project Name: VGSAU #439



**Project Id:** 074633

**Contact:** Jacob Ferenz

**Date Received in Lab:** Fri Aug-21-15 04:15 pm

**Report Date:** 31-AUG-15

**Project Manager:** Kelsey Brooks

Analysis Requested	Lab Id: Field Id: Depth:	514047-0 SB-7-074633- 50 ft		514047-00 SB-7-074633-J		514047-00	1	514047-01		514047-0	11	514047-01	12
Analysis Requested	Depth:		JR 50'	SB-7-074633-J	JR 70'	SB 7 074633 I							
Anaiysis Requesiea	•	50 ft	B-7-074633-JR 50'		SB-7-074633-JR 70'		SB-7-074633-JR 90'		SB-8-074633-JR 0'		SB-8-074633-JR 5'		JR 10'
		30 It		70 ft		90 ft		0 ft		5 ft		10 ft	
1	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-21-15 (	09:40	Aug-21-15 0	9:45	Aug-21-15 0	9:50	Aug-21-15 0	9:55	Aug-21-15 1	0:00	Aug-21-15 1	10:05
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-27-15	15:30	Aug-27-15 1	5:30	Aug-27-15 1:	5:30	Aug-27-15 1	5:30	Aug-27-15 1	5:30	Aug-27-15 1	15:30
	Analyzed:	Aug-29-15	Aug-29-15 05:07		06:15	Aug-29-15 0	6:38	Aug-29-15 0	7:00	Aug-29-15 0	)7:23	Aug-29-15 0	)7:46
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		7.28	2.16	ND	2.09	ND	2.10	9.05	2.28	289	24.0	172	10.6
Percent Moisture	Extracted:												
Analyzed:		Aug-27-15	17:30	Aug-27-15 1	7:30	Aug-27-15 1	7:30	Aug-27-15 1	7:30	Aug-27-15 1	17:30	Aug-27-15 1	17:30
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		7.59	1.00	4.15	1.00	4.92	1.00	12.4	1.00	16.8	1.00	5.74	1.00

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#### **Certificate of Analysis Summary 514047**

#### GHD Services, INC- Midland, Midland, TX

Project Name: VGSAU #439



**Project Id:** 074633

Contact: Jacob Ferenz

**Project Location:** NM

**Date Received in Lab:** Fri Aug-21-15 04:15 pm

**Report Date:** 31-AUG-15

**Project Manager:** Kelsey Brooks

Analysis Requested    Lab Id:   514047-013   514047-014   514047-015   514047-016   514047-017   514047-018									1 1 0 J c c c 1 1 2 u 2					
Analysis Requested       Depth: Matrix:       15 ft Matrix:       20 ft SOIL       30 ft SOIL       50 ft SOIL       70 ft SOIL       90 ft SOIL         Sampled:       Aug-21-15 10:10       Aug-21-15 10:15       Aug-21-15 10:20       Aug-21-15 10:25       Aug-21-15 10:30       Aug-21-15 10:35         Inorganic Anions by EPA 300/300.1       Extracted:       Aug-27-15 15:30       Aug-27-15 17:30       Aug-27-15 1		Lab Id:	514047-0	13	514047-0	14	514047-0	15	514047-0	16	514047-0	17	514047-0	18
Depth:   15 ft   20 ft   30 ft   50 ft   70 ft   90 ft   90 ft   SOIL	Analysis Paguested	Field Id:	SB-8-074633-	JR 15'	SB-8-074633-J	SB-8-074633-JR 20'		SB-8-074633-JR '30		JR 50'	SB-8-074633-JR 70'		SB-8-074633-	JR 90'
Sampled:   Aug-21-15 10:10   Aug-21-15 10:15   Aug-21-15 10:20   Aug-21-15 10:25   Aug-21-15 10:30   Aug-21-15 10:35	Anaiysis Kequesiea	Depth:	15 ft		20 ft		30 ft		50 ft		70 ft		90 ft	
Inorganic Anions by EPA 300/300.1    Extracted:   Aug-27-15   15:30   Aug-27-15   15:3		Matrix:	SOIL			SOIL		SOIL			SOIL		SOIL	
Analyzed: Aug-29-15 08:31 Aug-29-15 08:54 Aug-29-15 09:17 Aug-29-15 09:39 Aug-29-15 10:48 Aug-29-15 11:10  Units/RL: mg/kg RL mg/		Sampled:	Aug-21-15	10:10	Aug-21-15 1	0:15	Aug-21-15 1	0:20	Aug-21-15	10:25	Aug-21-15	10:30	Aug-21-15 1	10:35
Units/RL:   mg/kg   RL   mg/k	Inorganic Anions by EPA 300/300.1	Extracted:	Aug-27-15	15:30	Aug-27-15 1	5:30	Aug-27-15 1	5:30	Aug-27-15	15:30	Aug-27-15	15:30	Aug-27-15 1	15:30
Chloride 41.0 2.07 55.9 2.06 630 22.0 72.2 2.10 67.4 2.08 80.4 2.09  Percent Moisture Extracted: Analyzed: Aug-27-15 17:30 Aug-27-15 17:30 Aug-27-15 17:30 Aug-27-15 17:30 Aug-27-15 17:30 Aug-27-15 17:30		Analyzed:	Aug-29-15	Aug-29-15 08:31		08:54	Aug-29-15 0	9:17	Aug-29-15 (	)9:39	Aug-29-15	10:48	Aug-29-15 1	11:10
Percent Moisture         Extracted:         Aug-27-15 17:30         Aug-27-15 17:3		Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Analyzed:         Aug-27-15 17:30	Chloride		41.0	2.07	55.9	2.06	630	22.0	72.2	2.10	67.4	2.08	80.4	2.09
	Percent Moisture	Extracted:												
Units/RL:   % RL   % RL   % RL   % RL   % RL   % RL		Analyzed:	Aug-27-15	Aug-27-15 17:30		7:30	Aug-27-15 1	7:30	Aug-27-15	17:30	Aug-27-15	17:30	Aug-27-15 1	17:30
		Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture 3.50 1.00 3.00 1.00 8.92 1.00 4.95 1.00 3.69 1.00 4.29 1.00	Percent Moisture 3.50 1.00		1.00	3.00	1.00	8.92	1.00	4.95	1.00	3.69	1.00	4.29	1.00	

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**Project Location:** NM

#### **Certificate of Analysis Summary 514047**

#### GHD Services, INC- Midland, Midland, TX

Project Name: VGSAU #439



**Project Id:** 074633 Contact: Jacob Ferenz

Date Received in Lab: Fri Aug-21-15 04:15 pm

**Report Date:** 31-AUG-15

**Project Manager:** Kelsev Brooks

								I Toject Mai	inger.	xeisey brooks	,		
	Lab Id:	514047-0	)19	514047-02	20	514047-0	21	514047-0	)22	514047-0	23	514047-0	24
Analysis Requested	Field Id:	SB-9-074633	-JR 0'	SB-9-074633-	JR 5'	SB-9-074633-	SB-9-074633-JR 10'		JR 15'	SB-9-074633-JR 20'		SB-9-074633-	JR 30'
Analysis Requesieu	Depth:	0 ft		5 ft		10 ft		15 ft		20 ft		30 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-21-15	10:40	Aug-21-15 1	0:45	Aug-21-15 1	0:50	Aug-21-15	10:55	Aug-21-15	1:00	Aug-21-15	11:05
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-27-15	15:30	Aug-27-15 1	5:30	Aug-27-15 1	5:30	Aug-28-15	16:00	Aug-28-15	16:00	Aug-28-15	16:00
	Analyzed:	Aug-29-15	Aug-29-15 11:33		1:56	Aug-29-15 1	2:19	Aug-29-15	16:51	Aug-29-15	18:00	Aug-29-15	18:22
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		79.6	44.7	2540	111	474	43.9	23.9	2.07	114	21.3	77.2	2.17
Percent Moisture	Extracted:												
	Analyzed:	Aug-27-15	Aug-27-15 17:30		7:30	Aug-27-15 1	7:30	Aug-27-15	17:30	Aug-27-15	17:30	Aug-27-15	17:30
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture 10		10.5	1.00	10.2	1.00	8.95	1.00	3.20	1.00	6.08	1.00	8.02	1.00

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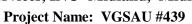
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**Project Location:** NM

#### **Certificate of Analysis Summary 514047**

#### GHD Services, INC- Midland, Midland, TX





**Project Id:** 074633

**Contact:** Jacob Ferenz

Date Received in Lab: Fri Aug-21-15 04:15 pm

**Report Date:** 31-AUG-15

**Project Manager:** Kelsey Brooks

								1 Toject Manager.	
	Lab Id:	514047-0	)25	514047-02	26	514047-02	27		
Analysis Paguastad	Field Id:	SB-9-074633-	JR 50'	SB-9-074633-J	JR 70'	SB-9-074633-J	JR 90'		
Analysis Requested	Depth:	50 ft		70 ft		90 ft			
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Aug-21-15	11:10	Aug-21-15 1	1:15	Aug-21-15 1	11:20		
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-28-15	16:00	Aug-28-15 1	6:00	Aug-28-15 1	16:00		
	Analyzed:	Aug-29-15	18:45	Aug-29-15 1	9:08	Aug-29-15 1	19:30		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		21.4	2.10	4.21	2.07	3.63	2.07		
Percent Moisture	Extracted:								
	Analyzed:	Aug-27-15	17:30	Aug-27-15 1	7:30	Aug-27-15 1	17:30		
	Units/RL:	%	RL	%	RL	%	RL		
Percent Moisture		4.85	1.00	3.17	1.00	3.43	1.00		

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

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#### Flagging Criteria



- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- **K** Sample analyzed outside of recommended hold time.
- **JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- \*\* Surrogate recovered outside laboratory control limit.
- BRL Below Reporting Limit.
- **RL** Reporting Limit

MDL Method Detection Limit SDL Sample Detection Limit LOD Limit of Detection

PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation

**DL** Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
2505 North Falkenburg Rd, Tampa, FL 33619	(813) 620-2000	(813) 620-2033
12600 West I-20 East, Odessa, TX 79765	(432) 563-1800	(432) 563-1713
6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



mg/kg

**Units:** 

#### **BS / BSD Recoveries**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY



**Project Name: VGSAU #439** 

**Work Order #:** 514047 **Project ID:** 074633

 Analyst:
 JUM
 Date Prepared:
 08/26/2015
 Date Analyzed:
 08/27/2015

Lab Batch ID: 975659Sample: 697223-1-BKSBatch #: 1Matrix: Solid

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Chloride	<2.00	50.0	50.2	101	50.0	54.2	100	7	00.110	20	

**Analyst:** JUM **Date Prepared:** 08/27/2015 **Date Analyzed:** 08/29/2015

Lab Batch ID: 975762 Sample: 697359-1-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	51.2	102	50.0	50.3	101	2	90-110	20	

**Analyst:** JUM **Date Prepared:** 08/28/2015 **Date Analyzed:** 08/29/2015

Lab Batch ID: 975766 Sample: 697370-1-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	50.6	101	50.0	50.3	101	1	90-110	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



#### Form 3 - MS Recoveries

Project Name: VGSAU #439



Work Order #: 514047

**Lab Batch #:** 975659 **Project ID:** 074633

 Date Analyzed:
 08/27/2015
 Date Prepared:
 08/26/2015
 Analyst:
 JUM

 QC- Sample ID:
 513742-013 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	1780	2660	4840	115	80-120	

**Lab Batch #:** 975659

 Date Analyzed:
 08/28/2015
 Date Prepared:
 08/26/2015
 Analyst:
 JUM

 QC- Sample ID:
 514317-005 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	86.5	500	631	109	80-120	

**Lab Batch #:** 975762

 Date Analyzed:
 08/29/2015
 Date Prepared: 08/27/2015
 Analyst: JUM

 QC- Sample ID:
 514047-002 S
 Batch #: 1
 Matrix: Soil

Reporting Units: mg/kg

Reporting Units: mg/kg	MAT	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]				
Chloride	25.7	52.9	79.7	102	80-120	

**Lab Batch #:** 975762

 Date Analyzed:
 08/29/2015
 Date Prepared:
 08/27/2015
 Analyst:
 JUM

 QC- Sample ID:
 514047-012 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg

Reporting Units: mg/kg	MATE	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	172	265	454	106	80-120	

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

BRL - Below Reporting Limit



#### Form 3 - MS Recoveries

Project Name: VGSAU #439



Work Order #: 514047

**Lab Batch #:** 975766 **Project ID:** 074633

 Date Analyzed:
 08/29/2015
 Date Prepared:
 08/28/2015
 Analyst:
 JUM

 QC- Sample ID:
 514047-027 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg

MATRIX / MATRIX SPIKE RECOVERY STUDY

	1717.11	X12X / 1V17X	T KIZ OT TIKE	RECO	VERT 510	<b>D1</b>
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]	[0]		,,,,,	
Chloride	3.63	51.8	57.6	104	80-120	

**Lab Batch #:** 975766

 Date Analyzed:
 08/29/2015
 Date Prepared:
 08/28/2015
 Analyst:
 JUM

 QC- Sample ID:
 514468-003 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg MATRIX / MATRIX SPIKE RECOVERY STUDY Parent Spiked Sample Control **Inorganic Anions by EPA 300** Sample Spike Result %R Limits Flag Result Added [D] %R [C] [A] [B] **Analytes** Chloride 1720 2500 4350 105 80-120

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

BRL - Below Reporting Limit



#### **Sample Duplicate Recovery**



**Project Name: VGSAU #439** 

**Work Order #:** 514047

**Lab Batch #:** 975633 **Project ID:** 074633

 Date Analyzed:
 08/27/2015 17:30
 Date Prepared:
 08/27/2015
 Analyst:
 WRU

 QC- Sample ID:
 514047-001 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	SAMPLE	DUPLIC	ATE REC	OVERY
	Parent Sample Result [A]	Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	14.4	15.1	5	20	

**Lab Batch #:** 975633

 Date Analyzed:
 08/27/2015 17:30
 Date Prepared:
 08/27/2015
 Analyst: WRU

 QC- Sample ID:
 514333-001 D
 Batch #:
 1
 Matrix: Soil

Reporting Units: %	SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	12.9	13.3	3	20	

**Lab Batch #:** 975638

 Date Analyzed:
 08/27/2015 17:30
 Date Prepared:
 08/27/2015
 Analyst:
 WRU

 QC- Sample ID:
 514047-011 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE A	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	16.8	16.9	1	20	

**Lab Batch #:** 975638

 Date Analyzed:
 08/27/2015 17:30
 Date Prepared:
 08/27/2015
 Analyst: WRU

 QC- Sample ID:
 514047-021 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	SAMPLE 1	DUPLIC	ATE REC	OVERY
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	8.95	8.49	5	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

Stafford, Texas (281-240-4200)

Toron (214 pp. pp. p.		Odessa, Texas (432-563-1800)	Lakeland, Florida (863-646-8526)
iids, Texas (214-902-0300)		Norcross, Georgia (770-449-8800)	Tampa, Florida (813-620-2000)
rvice Center - San Antonio, Texas (210-509-3334)	moo.com	Xenco Quote # Xenco Job #	HXFD
Client / Reporting Information	Project Information	Charly and a HIOTHIAIDH	Matrix Codes
pany Name / Branch: CHD- Dallas	Project Name/Number: (FM) (1)		A= Air
Mas The Kon Place Soite Soc	Project Location:		S = Soil/Sed/Solid GW =Ground Water DW = Drinking Water
	ACIOI NO. 10		Ow - Chinking water

S. Fo		VENOOG STATE	ates, subcontractors and assign	CO Laboratories and its affilia	er from client company to XEN	a valid purchase ord	alinquishment of samples constitutes a	Notice: Signature of this document and re
On Ice Cooler Temp. Thermo, Corr. Factor	applicable	Preserved where applicable	Custody Seal #	2	Received By:	Date Time:		Relinquished by:
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ed By:		8/21/15	2	R	Received By:	Date Time:	RUCE	Relinquished by:
		ER DELIVERY	Date Time: Repetited By: Relinguished By:	SAMPLES CHANGE POS	Received By:	Date Time:		Refinquished by Sampler:
cking#	FED-EX / UPS: Tracking #					00 pm	TAT Starts Day received by Lab, if received by 3:00 pm	TAT Starts Day receive
				klist	TRRP Checklist			3 Day EMERGENCY
			UST / RG -411	P Forms)	Level 3 (CLP Forms)		Contract TAT	2 Day EMERGENCY
			TRRP Level IV	Level III Std QC+ Forms	Level III Std		X Day TAT	Next Day EMERGENCY
Sison	5	raw data)	Level IV (Full Data Pkg /raw data)	QC	Level II Std QC		5 Day TAT	Same Day TAT
	Notes:			Data Deliverable Information	D		less days)	annarouna riiile ( business uays)
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	61	Cr	H2SO4 NaOH NaHSO4 MEOH NONE	HCI NaOH/Z Acetate	Date Time Matrix	Sample Depth		1
		110	Number of preserved bottles	Number	Collection	S	Field ID / Point of Collection	No. Field ID / F
WW= Waste Water		nò				Dryn F	runter Macy	6
W=Wipe O≕Oil		100			PO Number:	1	o revens	20
SL = Sludge WW= Waste Water		2						Project Contact:
P = Product SW = Surface water				***	Invoice To:		Phone No:	Indestructions and one of the
GW =Ground Water DW = Drinking Water				1984×	VESAM		15 234 Site Soo	The ton
A= Air S=Soil/Sed/Solid		14	4633	EMC/07	Colort Location:		THIS Dallas	Company Address:
		_		-	Project Name/Number:			Company Name / Branch:



Stafford, Texas (281-240-4200)

CHAIN OF CUSTODY

Odessa, Texas (432-563-1800)

Lakeland, Florida (863-646-8526)

W A And Anta And Anta Anta Anta Anta Anta Anta Anta Anta			Same Day TAT    Same Day TAT   Next Day EMERGENCY   2 Day EMERGENCY   3 Day EMERGENCY   TAT Starts Day received by La   Reliable by Bashpier:   Reliab
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FED.EX/UPS: To	D3D &   Z	33-UR 70 70 33-UR 70 70 70 70 70 70 70 70 70 70 70 70 70	Same Day TAT  Next Day EMERGENCY  2 Day EMERGENCY  3 Day EMERGENCY  TAT Starts Day received
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<. Chlorides	1005 Bruis S 11 X 3	1633-JR 10'	2 SB-8-074
Chlorides	1 5 SIVE 2000	14633-JK	1 JB-8-0741
loricles	Mairix  bottles  HCI  NaOH/Z  Acetate  HNO3  H2SO4  NaOH  NaHSO4  MEOH  NONE		
des	umber of preserved bottles	Field ID / Point of Collection	No. Field ID / Poi
		Kiedel/John Felgerson	Jenniter
	PO Number:	Herens	Jacob Jacob
			Project Contact:
	Invoice To:	Phone No:	Tabe Crass Oct
	VOSAW#439	234 Soite Soo	Dallas TX 15234
	Project Name/Number: CEMCD74633	CHTD-Dallas	Company Name / Branch:
	Project Information	ation	Client / Reporting Information
Analytical information			
co Job#	www.xenco.com	o, Texas (210-509-3334)	Service Center - San Antonio, Texas (210-509-3334)
Norcross, Georgia (770-449-8800) Tampa, Florida (813-620-2000)	7		Dallas, Texas (214-902-0300)



# CHAIN OF CUSTODY

Stafford, Texas (281-240-4200)		Odessa, Texas (432-563-1800)	Lakeland, Florida (863-646-8526)
Dallas, Texas (214-902-0300)		Norcross, Georgia (770-449-8800)	Tampa, Florida (813-620-2000)
Service Center - San Antonio, Texas (210-509-3334)	www.xenco.com	Xenco Quote # Xenco Job #	CACA
		Analytical Information	Matrix Codes
Client / Reporting Information Company Name / Branch: AHH) - Dallas	Project Name/Number: (FMC 074633		A= Air S = Soil/Sed/Solid
	15		DW = Drinking Water P = Product SW = Surface water
- WM 331-	BSDD Invoice to:	2.5	SL = Sludge WW= Waste Water
Project Contact: Jacob Feranz	PO Number:	d	0 = 1
echel John	Frankon	prio	WW= Waste Water
	Collection Number of preserved bottles	Jo	
No. Field ID / Point of Collection	Depth Jake Mairix bottles HCI NaOH/Zn Acetate HNO3 H2SO4 NaOH NAHSO4 NONE	Ch	Field Comments
1 SB-9-D74633-JK	1080	->	
2 SB-9-D74633-JK	055		
3 77-61-0 14633-01			
58-9-074633-c)R	1110		
· SB-9-074633-JR	70 1115 8/21/15 S		
SB-9-07	90'1130 8 ph/15 S 1	4	
Φ.			
Turnaround Time ( Business days)	Data Deliverable Information	Notes:	
Same Day TAT 5 Day TAT	Level II Std QC Level IV (Full Data Pkg fraw data)	g/raw data) Seu SS	
Naxt Day EMERGENCY 7 Day TAT	Level III Std QC+ Forms TRRP Level IV		
2 Day EMERGENCY Contract TAT	Level 3 (CLP Forms) UST / RG -411		
3 Day EMERGENCY	TRRP Checklist		
TAT Starts Day received by Lab, if received by 3:00 pm	0 pm	FED-EX / UPS: Tracking #	
Impler:	Received By:	Date Time: 16.15 Received By:	
Reinquished by:	Received By:	Date Time: Received By:	
Relinquished by:  Relinquished by:  8  Netice: Signature of this document and relinquishment of samples constitutes a	Relinquished by:    Present	Praserved where applicable  Praserved where applicable  Sugns XENCO's standard terms and conditions of service unit	standard terms and conditions of service unless previously negionated under a fully executed client contract.
MOTION OF BUS CONTINUES OF CONT			



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



Client: GHD Services, INC- Midland

Date/ Time Received: 08/21/2015 04:15:00 PM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Work Order #: 514047

**Temperature Measuring device used:** 

	Sample Receipt Checklist	Comments				
#1 *Temperature of cooler(s)?		3.4				
#2 *Shipping container in good condition	?	Yes				
#3 *Samples received on ice?		Yes				
#4 *Custody Seals intact on shipping cor	ntainer/ cooler?	N/A				
#5 Custody Seals intact on sample bottle		N/A				
#6 *Custody Seals Signed and dated?		N/A				
#7 *Chain of Custody present?		Yes				
#8 Sample instructions complete on Cha	in of Custody?	Yes				
#9 Any missing/extra samples?		No				
#10 Chain of Custody signed when relind	quished/ received?	Yes				
#11 Chain of Custody agrees with sampl	e label(s)?	Yes				
#12 Container label(s) legible and intact?	?	Yes				
#13 Sample matrix/ properties agree with	n 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 indicate	ed test(s)?	Yes				
#18 All samples received within hold time	e?	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 HN samples for the analysis of HEM or HEM-		N/A				
analysts.	·					
#22 >10 for all samples preserved with N	laAsO2+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: Checklist reviewed by:	Kelsey Brooks  Kelsey Brooks  Kelsey Brooks	Date: 08/23/2015  Date: 08/25/2015				

#### **Analytical Report 339843**

for

#### Ocotillo Environmental, LLC

**Project Manager: Cindy Crain** 

Chevron VGWU Satellite # 4 Trunkline 00409-013C

07-AUG-09





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

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-08-TX), Arizona (AZ0738), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00308), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87428), North Carolina (483), South Carolina (98015), Utah (AALII), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Miramar (EPA Lab code: FL01246): Florida (E86349)

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

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-08-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-08-TX)

Xenco-Corpus Christi (EPA Lab code: TX02613): Texas (T104704370-08-TX)

Houston - Dallas - San Antonio - Tampa - Miami - Midland - Corpus Christi - Atlanta - Latin America





07-AUG-09

Project Manager: Cindy Crain Ocotillo Environmental, LLC P.O. Box 1816 Hobbs, NM 88241

Reference: XENCO Report No: 339843

Chevron VGWU Satellite # 4 Trunkline

Project Address: Lea County, NM

#### Cindy Crain:

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 339843. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 339843 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron, II

Odessa Laboratory Manager

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

Certified and approved by numerous States and Agencies.

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

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



#### Sample Cross Reference 339843



#### Ocotillo Environmental, LLC, Hobbs, NM

Chevron VGWU Satellite # 4 Trunkline

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
SS-1	S	Aug-04-09 15:40	0 <b>-</b> 6 In	339843-001
SS-2	S	Aug-04-09 15:50	0 - 6 In	339843-002
SS-3	S	Aug-04-09 16:00	0 - 6 In	339843-003
SS-4	S	Aug-04-09 16:10	0 - 6 In	339843-004





Client Name: Ocotillo Environmental, LLC

Project Name: Chevron VGWU Satellite # 4 Trunkline

Project ID:

00409-013C

Work Order Number: 339843

Report Date: 07-AUG-09

Date Received: 08/05/2009

#### Sample receipt non conformances and Comments:

None

Sample receipt Non Conformances and Comments per Sample:

None

Analytical Non Conformances and Comments:

Batch: LBA-767862 Inorganic Anions by EPA 300

None

Batch: LBA-767881 Percent Moisture

None



Project Location: Lea County, NM

Project Id: 00409-013C Contact: Cindy Crain

# Certificate of Analysis Summary 339843 Ocotillo Environmental, LLC, Hobbs, NM

Project Name: Chevron VGWU Satellite # 4 Trunkline

Date Received in Lab: Wed Aug-05-09 04:00 pm Report Date: 07-AUG-09

Brent Barron, II Project Manager:

	Lab Id:	339843-001	339843-002	339843-003	339843-004
A to alumin Donnoctod	Field Id:	SS-1	SS-2	SS-3	SS-4
Analysis nequesieu	Depth:	u 9-0	0-6 In	и 9-0	0-6 h
	Matrix:	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-04-09 15:40	Aug-04-09 15:50	Aug-04-09 16:00	Aug-04-09 16:10
Anions by EPA 300	Extracted:				
	Analyzed:	Aug-06-09 10:40	Aug-06-09 10:40	Aug-06-09 10:40	Aug-06-09 10:40
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		4890 104	23400 1040	15500 504	29400 1040
Percent Moisture	Extracted:				
	Analyzed:	Aug-07-09 09:23	Aug-07-09 09:23	Aug-07-09 09:23	Aug-07-09 09:23
	Units/RL:	% RL	% RL	% RL	% RL
Percent Moisture		3.68 1.00	3.84 1.00	ND 1.00	3.43 1.00

Odessa Laboratory Manager Brefit Barron, II

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Since 1990

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



#### Flagging Criteria



- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to effect the recovery of the spike concentration. This condition could also effect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the MQL and above the SQL.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

\* Outside XENCO's scope of NELAC Accreditation.

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### **Blank Spike Recovery**



### Project Name: Chevron VGWU Satellite # 4 Trunkline

Work Order #: 339843 Project ID: 00409-013C

 Lab Batch #: 767862
 Sample: 767862-1-BKS
 Matrix: Solid

 Date Analyzed: 08/06/2009
 Date Prepared: 08/06/2009
 Analyst: LATCOR

Reporting Units: mg/kg Batch #: 1 BLANK/BLANK SPIKE RECOVERY STUDY

Reporting Units: mg/kg	Batch #: 1	DLANK/BLANK SPIKE RECOVERT STUDT										
Anions by EPA 300	Blank Result	Spike Added	Blank Spike Result	Blank Spike %R	Control Limits %R	Flags						
Analytes	[A]	[B]	[C]	[D]	70K							
Chloride	ND	10.0	9.77	98	80-120							



### Form 3 - MS Recoveries



Project Name: Chevron VGWU Satellite # 4 Trunkline

Work Order #: 339843

Lab Batch #: 767862 Project ID: 00409-013C

Date Analyzed: 08/06/2009 Date Prepared: 08/06/2009 Analyst: LATCOR

**QC- Sample ID:** 339841-001 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg	MATRIX / MATRIX SPIKE RECOVERY STUDY										
Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag					
Chloride	11400	10800	21700	95	80-120						



### Sample Duplicate Recovery



Project Name: Chevron VGWU Satellite # 4 Trunkline

Work Order #: 339843

Lab Batch #: 767862

**Project ID:** 00409-013C

Analyst: LATCOR 08/06/2009

Date Prepared: Date Analyzed: 08/06/2009 QC-Sample ID: 339841-001 D

Batch #: Matrix: Soil

Reporting Units: mg/kg	SAMPLE/SAMPLE DUPLICATE RECOVERY									
Anions by EPA 300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag					
Analyte		[10]								
Chloride	11400	11500	1	20						

Lab Batch #: 767881 **Date Analyzed:** 08/07/2009

08/07/2009 Date Prepared:

Analyst: BEV

QC- Sample ID: 339842-002 D

1 Batch #:

Matrix: Soil

Reporting Units: %	SAMPLE / SAMPLE DUPLICATE RECOVERY									
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag					
Analyte		[10]								
Percent Moisture	3.82	4.26	11	20						

## **Environmental Lab of Texas**

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Phone: 432-563-1800 Fax: 432-563-1713 12600 West I-20 East Odessa, Texas 79765

4 Trunkline				□ NPDES			sud S	48' 1	, p.S. (əlubərlə2-ən9) TAT HZUR TAT brebnej?	2	7	7	7			z(	N Z	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	FedEx Lone Star	5° 07 L2
Chevron VGWU Satellite #4 Trunkline	00409-013C	Lea County, NM		TRRP		e For:		(	Semivolatiles BTEX 8021B/5030 or BTEX 8260 N.O.R.M.							ents:	space?	ontainer(s) ooler(s)	PHL	
	#	ж		K Standard		Analyze For:	TCLP:	_	Calions (Ca, Mg, Na, K) Anions (Q) SO4, Alkalinity) SAR / ESP / CEC Volatiles	2	7	7	7			Laboratory Comments: Sample Containers Intact?	VOCs Free of Headspace?	Custody seals on container Custody seals on cooler(s)	Sample Hand Delivered by Sampler/Client Rep. ? by Courier?	7 02 9/055 Temperature Upon Receipt:
Project Name:	Project #:	Project Loc:	PO #:	Report Format:					TPH: 418.1 8015M 8019 TPH: 418.1 8015M 8019							3 00	Time		Time	Time Tr
				Re	mo			iners Matrix	None Other ( Specify) DW-Drinking Water SL-Sludge GW = Groundwater S-Soil/Soild	2	5	7   5	7 5				Date	1	Date	Date 8-5-09
				-0304	cindy.crain@gmail.com			Preservation & # of Containers	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> H <sub>2</sub> SO <sub>4</sub> HCI											-
				(432) 272-0304		•		Pre	Field Filtered  Total #, of Containers loe  Hoo	-	1	-								Jun 1
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	ronmental, LI	60	88241	44	di (se												Date	8/5/09	Date	Date
anager: Cindy Crain	Name Ocotillo Environmental, LLC	Company Address: PO Box 1816	/Zip: Hobbs, NM 88241	e No: (575) 441-7244	Sampler Signature:	}	01.0000	くりになっ	FIELD CODE		2	23				2	6	bai		
Project Manager:	Company Name	Company	City/State/Zip:	Telephone No:	Sampler §		only)	S#:		1-65	55-;	55- 3	55-4			pecial Instructions:	Relinquished by:	Ĵ	hed by:	hed by:
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### Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

client: Octillo ENV.			
Date/ Time: 8.5.09 16.00			
Lab ID#: 339843			
Initials:			
Sample Receipt	Checklist		Client Initials
III. T	Yes	No	32.6 °C
#1 Temperature of container/ cooler?	Yes	No	
#2 Shipping container in good condition?	Yes	No	(Not Present)
#3 Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present
#4 Custody Seals intact on sample bottles/ container?	Yes	No	Tyourselle
#5 Chain of Custody present?	Yes	No	
#6 Sample instructions complete of Chain of Custody?			
#7 Chain of Custody signed when relinquished/ received?	Yes	No No	IDustition on Cont / Lid
#8 Chain of Custody agrees with sample label(s)?	Yes		ID written on Coat./ Lid
#9 Container label(s) legible and intact?	Yes	No	Not Applicable
#10 Sample matrix/ properties agree with Chain of Custody?	Yes	No	
#11 Containers supplied by ELOT?	Yes	No	
#12 Samples in proper container/ bottle?	(Yes	No	See Below
#13 Samples properly preserved?	Yes	No	See Below
#14 Sample bottles intact?	Yes	No	
#15 Preservations documented on Chain of Custody?	(Yes	No	
#16 Containers documented on Chain of Custody?	Yes	No	
#17 Sufficient sample amount for indicated test(s)?	(Yes)	No	See Below
#18 All samples received within sufficient hold time?	Yes	No	See Below
#19 Subcontract of sample(s)?	Yes	No	(Not Applicable
#20 VOC samples have zero headspace?	Yes	No	Not Applicable
Contact: Contacted by:  Regarding:	nentation	T.	Date/ Time:
Corrective Action Taken:			
Check all that Apply:  See attached e-mail/ fax Client understands and woul Cooling process had begun			37E (



September 22, 2009

Cindy Crain Ocotillo Environmental, LLC P.O. Box 1816 Hobbs, NM 88241

Re: Chevron (0409-013C)

Enclosed are the results of analyses for sample number H18284, received by the laboratory on 09/22/09 at 9:05 am.

Cardinal Laboratories is accredited through Texas NELAP for:

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

Total Petroleum Hydrocarbons

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely.

Celey D/Keene Laboratory Director



ANALYTICAL RESULTS FOR OCOTILLO ENVIRONMENTAL ATTN: CINDY CRAIN P.O. BOX 1816 HOBBS, NM 88241 FAX TO: (432) 272-0304

Receiving Date: 09/22/09

Reporting Date: 09/22/09

Project Number: 0409-013C (CHEVRON)

Project Name: VGWU SATELLITE #4 TRUNKLINE

Project Location: LEA CO., NM

Analysis Date: 09/22/09 Sampling Date: 09/21/09

Sample Type: SOIL

Sample Condition: COOL & INTACT @ 5.5°C

Sample Received By: ML

Analyzed By: HM

		CIT
LAB NO.	SAMPLE ID	(mg/kg)
H18284-1	SS-1 (1')	3,400
H18284-2	SS-1 (2')	4,040
H18284-3	SS-1 (2.5')	1,880
H18284-4	SS-2 (1')	1,280
H18284-5	SS-2 (2')	1,180
H18284-6	SS-2 (3')	1,460
H18284-7	SS-3 (1')	1,380
H18284-8	SS-3 (2')	64
H18284-9	SS-3 (3')	864
H18284-10	SS-3 (4')	1,250
H18284-11	SS-5 (6")	480
H18284-12	\$S-5 (1')	224
H18284-13	SS-6 (6")	64
H18284-14	SS-6 (1')	32
H18284-15	SS-7 (6")	480
H18284-16	SS-7 (1')	32
Quality Control	And the state of t	500
True Value QC		500
% Recovery		100
Relative Percer	it Difference	< 0.1

METHOD: Standard Methods 4500-CI'B

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

Date

H18284 OCO

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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	V プリナ			Company Name:	Project Manager:	Address:	City:	Phone #:	Project #: 😢	Project Name:	Project Location:	Sampler Name:	FOR LAB USE ONLY		Lab I.D.		H 18284-1	2	i.	)		う	Carrier Co.	() <del>-</del>	J.	

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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

### ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abliene, TX 79603

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October 08, 2010

CINDY CRAIN
CRAIN ENVIRONMENTAL
2925 E. 17TH STREET
ODESSA, TX 79761

RE: VGWU SAT #4

Enclosed are the results of analyses for samples received by the laboratory on 10/06/10 15:15.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method SW-846 8260

Benzene, Toluene, Ethyl Benzene, and Total Xylenes

Method TX 1005

**Total Petroleum Hydorcarbons** 

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

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

Method EPA 552.2

Haloacetic Acids (HAA-5)

Method EPA 524.2

Total Trihalomethanes (TTHM)

Method EPA 524.4

Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



### Analytical Results For:

CRAIN ENVIRONMENTAL CINDY CRAIN 2925 E. 17TH STREET ODESSA TX, 79761

Fax To: (432) 272-0304

Received: 10/06/2010 Reported: 10/08/2010

Project Name: VGWU SAT #4
Project Number: 0810-020
Project Location: LEA CO., NM

Sampling Date: 10/06/2010

Sampling Type: Soil

Sampling Condition: \*\* (See Notes)
Sample Received By: Jodi Henson

### Sample ID: BH - 1 (5-6') (H020996-01)

mg,	/kg	Analyze	d By: HM					
Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
1520	16.0	10/08/2010	ND	416	104	400	3.77	
(H020996-0	12)							
mg	/kg	Analyze	d By: HM					
Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
736	16.0	10/08/2010	ND	416	104	400	3.77	
39 ,	J. 5	Analyze	d By: HM					
Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
528	16.0	10/08/2010	ND	416	104	400	3.77	
(H020996-0	14)							
mg,	/kg	Analyze	d By: HM					
Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
1520	16.0	10/08/2010	ND	416	104	400	3.77	
(H020996-0	05)							
mg	/kg	Analyze	d By: HM					
			Method Blank	BS	% Recovery	True Value OC	RPD	Qualifier
Result	Reporting Limit	Analyzed	MELHOU DIATIK	DS	70 NECOVERY	True value QC	KI D	Qualifici
	Result 1520 (H020996-0 mg Result 736 (H020996-0 mg Result 528 (H020996-0 mg Result 1520 (H020996-0 (H020996-0 (H020996-0 (H020996-0 (H020996-0	Result   Reporting Limit     1520	Result Reporting Limit Analyzed  1520 16.0 10/08/2010  (H020996-02)     mg/kg Analyze  Result Reporting Limit Analyzed  736 16.0 10/08/2010  (H020996-03)     mg/kg Analyze  Result Reporting Limit Analyzed  528 16.0 10/08/2010  (H020996-04)     mg/kg Analyze  Result Reporting Limit Analyzed  1520 16.0 10/08/2010	mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank           1520         16.0         10/08/2010         ND           (H020996-02)           mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank           528         16.0         10/08/2010         ND           (H020996-04)         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank           1520         16.0         10/08/2010         ND	mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank         BS           1520         16.0         10/08/2010         ND         416           (H020996-02)           mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed Method Blank         BS           1520         16.0         10/08/2010         ND         416	Majyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank         BS         % Recovery           1520         16.0         10/08/2010         ND         416         104           (H020996-02)           Mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed By: HM           (H020996-03)           Mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank         BS         % Recovery           528         16.0         10/08/2010         ND         416         104           (H020996-04)           Mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed By: HM	mg/ky         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank         BS         % Recovery         True Value QC           1520         16.0         10/08/2010         ND         416         104         400           (H020996-02) mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank         BS         % Recovery         True Value QC           736         16.0         10/08/2010         ND         416         104         400           (H020996-03) mg/kg         Analyzed By: HM           Result         Reporting Limit         Analyzed By: HM         BS         % Recovery         True Value QC           528         16.0         10/08/2010         ND         416         104         400           (H020996-04) mg/kg         Analyzed By: HM         True Value QC           1520         16.0         10/08/2010         ND         416         104         400	mg/ky         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank         BS         % Recovery         True Value QC         RPD           1520         16.0         10/08/2010         ND         416         104         400         3.77           (H020996-02)         Analyzed By: HM           Result         Reporting Limit         Analyzed         Method Blank         BS         % Recovery         True Value QC         RPD           736         16.0         10/08/2010         ND         416         104         400         3.77           (H020996-03)         Result         Reporting Limit         Analyzed         Method Blank         BS         % Recovery         True Value QC         RPD           528         16.0         10/08/2010         ND         416         104         400         3.77           (H020996-04)         Mg/kg         Analyzed By: HM           (H020996-05)         Mg/kg         Analyzed By: HM

### Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed walved unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such daims is based upon any of the above stated reasons or otherwise. Results relate only to the samples individed above. This report shall not be reproduced except in full with written approval of Cardinal laboratories.



### Analytical Results For:

CRAIN ENVIRONMENTAL CINDY CRAIN 2925 E. 17TH STREET ODESSA TX, 79761

Fax To: (432) 272-0304

Received:

10/06/2010

Reported: Project Name: 10/08/2010 VGWU SAT #4 0810-020

Project Number: Project Location:

LEA CO., NM

Sampling Date:

10/06/2010

Sampling Type:

Soil

Sampling Condition: Sample Received By: \*\* (See Notes)

Jodi Henson

### Sample ID: BH - 1 (30-31') (H020996-06)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1140	16.0	10/08/2010	ND	416	104	400	3.77	
Sample ID: BH - 2 (5-6') (	H020996-07)								
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/08/2010	ND	416	104	400	3.77	
Sample ID: BH - 2 (10-11'	) (H020996-0	98)							
Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	10/08/2010	ND	416	104	400	3.77	
Sample ID: BH - 2 (15-16'	) (H020996-0	19)							
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	10/08/2010	ND	416	104	400	3.77	
Sample ID: BH - 2 (20-21	') (H020996-1	LO)							
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	10/08/2010	ND	416	104	400	3.77	

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### Analytical Results For:

CRAIN ENVIRONMENTAL
CINDY CRAIN
2925 E. 17TH STREET
ODESSA TX, 79761

Fax To:

(432) 272-0304

Received:

Chloride, SM4500CI-B

10/06/2010

Reported: Project Name: 10/08/2010 VGWU SAT #4

Project Number:

0810-020

Project Location:

LEA CO., NM

mg/kg

Sampling Date:

10/06/2010

Sampling Type:

Soil

Sampling Condition: Sample Received By: \*\* (See Notes)
Jodi Henson

### Sample ID: BH - 3 (5-6') (H020996-11)

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	10/08/2010	ND	416	104	400	3.77	
Sample ID: BH - 3 (10-1	1') (H020996-	12)							
Chloride, SM4500CI-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	10/08/2010	ND	416	104	400	3.77	
Sample ID: BH - 3 (15-1	6') (H020996-	13)							
Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	10/08/2010	ND	416	104	400	3.77	

Analyzed By: HM

### Sample ID: BH - 3 (20 - 21') (H020996-14)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	10/08/2010	ND	416	104	400	3.77	

Cardinal Laboratories

\*=Accredited Analyte

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### **Notes and Definitions**

RPD Relative Percent Difference

\*\* Samples not received at proper temperature of 6°C or below.

\*\*\* Insufficient time to reach temperature.

Chloride by SM4500Cl-B does not require samples be received at or below 6°C

Samples reported on an as received basis (wet) unless otherwise noted on report

Analyte NOT DETECTED at or above the reporting limit

ND

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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

Company Name:	ن	rain Envicenmental	(D)		19	BILL TO		ANALYSIS REQUEST	
Project Manager:	رے ا	Lindu Cain		The state of the s	P.O. #:				
Address: 2925 East	125 Eas	かきった			Company:				
City: Che	(2000)	State: 7X	Zip: 7976	761	Attn:	\			
Phone # (4	132) 530	432) 530-4797 Fax#: (432) 272	2) 272	- c 3o4	Address: (		ب		
	310 · 020	O Project Owner:	: Che		City:	1			
Project Name:	ブタッフ	Jet = 4			State:	Zlp;			
Project Location:		CO NM			Phone =:	The state of the s			
Sampler Name:	Cindu	Crain			Fax #:				
2 40 mg oc - 20 mg	,			MATRIX	PRESERV	/ SAMPLING	N.G		
Lab I.D.	<i>ι</i> δ	Sample I.D.	GPRAB OR (C)OMP PERMERS RECUNDANERS	MASTEWATER SOIL SIL	CE VCOOL CE VCOOL DTHER:	DATE	TIME	Sapiroly	
1,22227	1 BH-1 (	5.6)		, ,	)	15			
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Received By:

Relinguished By

Enail Results to: Cindy, Crain@gmail. com Add'l Phone #; Add'l Fax #; 22 [][] ☐ Yes ☐ Yes Phone Result: Fax Result: REMARKS; ChĘD BY: (linitals) Cool intect Received By: 1280 Date:10/6/10 Time: 15/5 Time: Date: Delivered By: (Circle One) Sampler JUPS - Bus - Other: Relinduished &

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476  $\pm$ 

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Page 6 of

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

)	rain Enviconment	1,1	BILL TO		ANALYSIS REQUEST
Project เทินกลger: (	Cixan Caio		P.O. #:		
Audress: 2925 East	なった。む、		Company:		
city: (NESSA	State: 7X	Zip: 79761	Atto:		
) :#:	30-9797 Fax #: (432	372-0364	Address:	26	
Project #: 0810 - 020	ನವಿರ Project Owner:	Cheven	City:		
Project Name: NG NC	Set # 4		State: Zip:		
Project Location:	Lea Co NM		#		
Sampler Name:	indu Crain		Fax 年:		
F265 BL 55, 855	7	MATRIX	PRESERV SAMPLING	ING	\$
Lab I.D.	Sample I.D.	Syrbe or (C)OMP CONTAINERS ROUNDYMTER RSTEWNTER IL IL	HEB: E\COOI ND\BV8E: IHEB:		7014J
H20996-11 BH-	3 (6.6.)	0 S \ W	)A DI	1250	
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M	(15-115)	7	7	1206	
	(20-21)		1	1308	
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Relinquished By:	Date; O / L/O		whether such cannot be based about the above stated reason $\mathbf{B}\mathbf{V}$ :	Phone Resu	ult. 🗀 Yes 🗀 No   Add'l Phone #:
and Contraction	Time: 15/5			REMARKS:	U Yes D No
Relindusned/5%	Date:	Received By:	N & OLY	S. S	Enail Results to: Cindy, Crain@ amail. com
Delivered By: (Circle One)	ile One)	ς, <u>π</u>	on CHECKED BY:		א
Sampler JUPS - Bus - Other:		Cool Intact	The state of the s		
			~ 3		

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

Revision 1.0 FORMICOS

Page 7 of 7

### **Analytical Report 481522**

for Conestoga Rovers & Associates

Project Manager: Chris Knight
VGWU Satellte 4
074633
28-MAR-14

Collected By: Client





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

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

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135) Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

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

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

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

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

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





28-MAR-14

Project Manager: Chris Knight **Conestoga Rovers & Associates** 

2135 S Loop 250 W Midland, TX 79703

Reference: XENCO Report No(s): 481522

**VGWU Satellte 4** 

Project Address: Lea County, NM

### **Chris Knight:**

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) 481522. 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. 481522 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.

Kuns Hoah

**Kelsey Brooks** 

Project Manager

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

Certified and approved by numerous States and Agencies.

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

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America



### **Sample Cross Reference 481522**



### Conestoga Rovers & Associates, Midland, TX

VGWU Satellte 4

Sample Id	Matrix	<b>Date Collected</b>	Sample Depth	Lab Sample Id
074633-JMF-SBI	S	03-18-14 09:53	- 0 ft	481522-001
074633-JMF-SBI	S	03-18-14 09:57	- 10 ft	481522-002
074633-JMF-SBI	S	03-18-14 09:59	- 20 ft	481522-003
074633-JMF-SBI	S	03-18-14 10:05	- 35 ft	481522-004
074633-JMF-SB2	S	03-18-14 10:44	- 0 ft	481522-005
074633-JMF-SB2	S	03-18-14 10:45	- 5 ft	481522-006
074633-JMF-SB2	S	03-18-14 10:47	- 15 ft	481522-007
074633-JMF-SB2	S	03-18-14 10:52	- 35 ft	481522-008
074633-JMF-SB2	S	03-18-14 11:56	- 50 ft	481522-009
074633-JMF-SB3	S	03-18-14 12:13	- 0 ft	481522-010
074633-JMF-SB3	S	03-18-14 12:16	- 5 ft	481522-011
074633-JMF-SB3	S	03-18-14 12:18	- 15 ft	481522-012
074633-JMF-SB3	S	03-18-14 12:22	- 35 ft	481522-013
074633-JMF-SB4	S	03-18-14 12:48	- 0 ft	481522-014
074633-JMF-SB4	S	03-18-14 12:51	- 5 ft	481522-015
074633-JMF-SB4	S	03-18-14 12:54	- 15 ft	481522-016
074633-JMF-SB4	S	03-18-14 13:08	- 35 ft	481522-017
074633-JMF-SB4	S	03-18-14 13:27	- 50 ft	481522-018
074633-JMF-SB5	S	03-18-14 13:43	- 0 ft	481522-019
074633-JMF-SB5	S	03-18-14 13:46	- 5 ft	481522-020
074633-JMF-SB5	S	03-18-14 13:48	- 15 ft	481522-021
074633-JMF-SB5	S	03-18-14 13:54	- 35 ft	481522-022
074633-JMF-SB6	S	03-18-14 14:17	- 0 ft	481522-023
074633-JMF-SB6	S	03-18-14 14:20	- 5 ft	481522-024
074633-JMF-SB6	S	03-18-14 14:22	- 15 ft	481522-025
074633-JMF-SB6	S	03-18-14 14:26	- 35 ft	481522-026



### CASE NARRATIVE



Client Name: Conestoga Rovers & Associates

Project Name: VGWU Satellte 4

 Project ID:
 074633
 Report Date:
 28-MAR-14

 Work Order Number(s):
 481522
 Date Received:
 03/19/2014

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

### Analytical non conformances and comments:

Batch: LBA-937044 Inorganic Anions by EPA 300/300.1 Chloride recovered above QC limits in the Matrix Spike. Samples affected are: 481522-008, -015, -019, -004, -009, -010, -011, -017, -018, -005, -014, -001, -020, -002, -006, -012, -013, -003, -007, -016. The Laboratory Control Sample for Chloride is within laboratory Control Limits. No further action is required.



### Conestoga Rovers & Associates, Midland, TX

**Project Name: VGWU Satellte 4** 

TNI Ty BORATOR'S

Project Id: 074633 Contact: Chris Knight

Project Location: Lea County, NM

**Date Received in Lab:** Wed Mar-19-14 12:25 pm

**Report Date:** 28-MAR-14

**Project Manager:** Kelsey Brooks

								Troject Manager.		reisey Brooks			
	Lab Id:	481522-0	001	481522-0	02	481522-0	03	481522-0	04	481522-0	005	481522-006	
Analysis Requested	Field Id:	074633-JMI	F-SBI	074633-JMI	F-SBI	074633-JMF	-SBI	074633-JMI	F-SBI	074633-JMI	F-SB2	074633-JMF	F-SB2
Anaiysis Requesieu	Depth:	0 ft		10 ft		20 ft		35 ft		0 ft		5 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Mar-18-14	09:53	Mar-18-14 (	)9:57	Mar-18-14 0	9:59	Mar-18-14	10:05	Mar-18-14	10:44	Mar-18-14 1	10:45
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-21-14	10:00	Mar-21-14	10:00	Mar-21-14 1	0:00	Mar-21-14	10:00	Mar-21-14	10:00	Mar-21-14	10:00
	Analyzed:	Mar-25-14	00:53	Mar-25-14 (	)1:39	Mar-25-14 0	02:02	Mar-25-14 (	02:24	Mar-25-14	02:47	Mar-25-14 (	03:10
	Units/RL:	mg/kg	mg/kg RL		RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		163	163 10.0		2.09	4.70	2.36	3.58	2.11	8150	244	857	25.7
<b>Percent Moisture</b>	Extracted:												
	Analyzed:	Mar-20-14	17:15	Mar-20-14 17:15		Mar-20-14 17:15		Mar-20-14 17:15		Mar-20-14 17:15		Mar-20-14	17:15
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture	·	ND	1.00	4.44	1.00	15.2	1.00	5.33	1.00	18.2	1.00	22.2	1.00

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### Conestoga Rovers & Associates, Midland, TX

**Project Name: VGWU Satellte 4** 

TNI TyBORATORI

Contact: Chris Knight

**Project Id:** 074633

Project Location: Lea County, NM

**Date Received in Lab:** Wed Mar-19-14 12:25 pm

**Report Date: 28-MAR-14** 

**Project Manager:** Kelsey Brooks

								Troject Manager.		reisey Brooks			
	Lab Id:	481522-0	07	481522-0	08	481522-0	09	481522-0	10	481522-0	11	481522-012	
Analysis Requested	Field Id:	074633-JMI	F-SB2	074633-JMF	S-SB2	074633-JMF	-SB2	074633-JMF	-SB3	074633-JMF	F-SB3	074633-JMF	F-SB3
Anaiysis Requesieu	Depth:	15 ft		35 ft		50 ft		0 ft		5 ft		15 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Mar-18-14	10:47	Mar-18-14 1	0:52	Mar-18-14 1	1:56	Mar-18-14 1	2:13	Mar-18-14	12:16	Mar-18-14 1	12:18
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-21-14	10:00	Mar-21-14 1	0:00	Mar-21-14 1	0:00	Mar-21-14 1	0:00	Mar-21-14	10:00	Mar-21-14 1	10:00
	Analyzed:	Mar-25-14	Mar-25-14 04:18		04:40	Mar-25-14 0	05:03	Mar-25-14 0	5:26	Mar-25-14 (	05:48	Mar-25-14 (	06:34
	Units/RL:	mg/kg	mg/kg RL		RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1360	1360 41.6		105	2700	105	9960	404	1880	42.5	68.2	4.41
Percent Moisture	Extracted:												
	Analyzed:	Mar-20-14	17:15	Mar-20-14 17:15		Mar-20-14 17:15		Mar-20-14 17:15		Mar-20-14 17:15		Mar-20-14 1	17:15
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		3.83	1.00	5.11	1.00	5.09	1.00	ND	1.00	5.93	1.00	9.34	1.00

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### Conestoga Rovers & Associates, Midland, TX

**Project Name: VGWU Satellte 4** 

TNI TyBORATORI

Contact: Chris Knight

**Project Id:** 074633

Project Location: Lea County, NM

**Date Received in Lab:** Wed Mar-19-14 12:25 pm

**Report Date:** 28-MAR-14

**Project Manager:** Kelsey Brooks

								1 Tojece Man	iuger. i	ceisey brooks	,		
	Lab Id:	481522-0	013	481522-0	14	481522-0	15	481522-0	16	481522-0	17	481522-0	18
Analysis Requested	Field Id:	074633-JMI	F-SB3	074633-JMF	S-SB4	074633-JMF	S-SB4	074633-JMF	S-SB4	074633-JMF	S-SB4	074633-JMF	F-SB4
Analysis Requesieu	Depth:	35 ft		0 ft		5 ft		15 ft		35 ft		50 ft	
	Matrix:	SOIL	SOIL		SOIL		SOIL			SOIL		SOIL	
	Sampled:	Mar-18-14	12:22	Mar-18-14 1	2:48	Mar-18-14 1	2:51	Mar-18-14 1	2:54	Mar-18-14	3:08	Mar-18-14 1	13:27
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-21-14	10:00	Mar-21-14 1	0:00	Mar-21-14 1	0:00	Mar-21-14 1	10:00	Mar-21-14	10:00	Mar-21-14 1	10:00
	Analyzed:	Mar-25-14	06:57	Mar-25-14 (	7:19	Mar-25-14 0	7:42	Mar-25-14 (	09:23	Mar-25-14 (	9:45	Mar-25-14 1	10:08
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		32.1	2.11	11300	1020	4110	107	6220	131	12400	436	1880	41.6
Percent Moisture	Extracted:												
	Analyzed:	Mar-20-14	17:15	Mar-20-14 1	7:15	Mar-20-14 1	7:15	Mar-20-14 1	17:15	Mar-20-14	17:15	Mar-20-14 1	17:15
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		5.05	1.00	2.00	1.00	6.84	1.00	23.6	1.00	8.25	1.00	3.80	1.00

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### Conestoga Rovers & Associates, Midland, TX

**Project Name: VGWU Satellte 4** 

TNI

Contact: Chris Knight

**Project Id:** 074633

Project Location: Lea County, NM

**Date Received in Lab:** Wed Mar-19-14 12:25 pm

**Report Date:** 28-MAR-14

**Project Manager:** Kelsey Brooks

										tersey brooks			
	Lab Id:	481522-0	19	481522-0	20	481522-0	21	481522-0	22	481522-0	23	481522-0	24
Analysis Requested	Field Id:	074633-JMI	F-SB5	074633-JMF	S-SB5	074633-JMF	-SB5	074633-JMF	F-SB5	074633-JMF	-SB6	074633-JMF	S-SB6
Anaiysis Kequesieu	Depth:	0 ft		5 ft		15 ft		35 ft		0 ft		5 ft	
	Matrix:	SOIL	SOIL		SOIL		SOIL			SOIL		SOIL	
	Sampled:	Mar-18-14	13:43	Mar-18-14 1	3:46	Mar-18-14 1	3:48	Mar-18-14	13:54	Mar-18-14	14:17	Mar-18-14 1	4:20
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-21-14	10:00	Mar-21-14 1	0:00	Mar-21-14 1	0:00	Mar-21-14	10:00	Mar-21-14	10:00	Mar-21-14 1	10:00
	Analyzed:	Mar-25-14	10:31	Mar-25-14 1	0:54	Mar-25-14 1	3:10	Mar-25-14	13:55	Mar-25-14	14:18	Mar-25-14 1	14:41
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		111	10.0	622	21.1	553	21.1	18.8	2.11	311	20.1	21.5	2.06
Percent Moisture	Extracted:												
	Analyzed:	Mar-20-14	17:15	Mar-20-14 1	7:15	Mar-20-14 1	7:15	Mar-24-14	13:05	Mar-24-14	13:05	Mar-24-14 1	13:05
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		ND	1.00	5.18	1.00	5.26	1.00	5.02	1.00	ND	1.00	2.90	1.00
·	•	•	•	•		•		•					

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### Conestoga Rovers & Associates, Midland, TX

Project Name: VGWU Satellte 4



**Project Id:** 074633

Project Location: Lea County, NM

Contact: Chris Knight

**Date Received in Lab:** Wed Mar-19-14 12:25 pm

**Report Date: 28-MAR-14** 

**Project Manager:** Kelsey Brooks

							i roject manager.	Trensej Brooms	
	Lab Id:	481522-025		481522-02	26				
Analysis Requested	Field Id:	074633-JMF-SI	36	074633-JMF	-SB6				
Anatysis Requested	Depth:	15 ft		35 ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Mar-18-14 14:2	22	Mar-18-14 1	4:26				
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-21-14 10:0	00	Mar-21-14 1	0:00				
	Analyzed:	Mar-25-14 15:0	)3	Mar-25-14 1	5:26				
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		13.4	2.06	4.05	2.07				
Percent Moisture	Extracted:								
	Analyzed:	Mar-24-14 13:0	)5	Mar-24-14 1	3:05				
	Units/RL:	%	RL	%	RL				
Percent Moisture		3.10	1.00	3.34	1.00	·			
·						·		·	·

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### Flagging Criteria



- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- **K** Sample analyzed outside of recommended hold time.
- **JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- \*\* Surrogate recovered outside laboratory control limit.
- BRL Below Reporting Limit.
- **RL** Reporting Limit

MDL Method Detection Limit SDL Sample Detection Limit LOD Limit of Detection

PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation

**DL** Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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6017 Financial Drive, Norcross, GA 30071	(770) 449-8800	(770) 449-5477
3725 E. Atlanta Ave, Phoenix, AZ 85040	(602) 437-0330	



mg/kg

**Units:** 

### **BS / BSD Recoveries**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY



**Project Name: VGWU Satellte 4** 

**Project ID:** 074633 **Work Order #:** 481522

**Date Prepared:** 03/21/2014 **Date Analyzed:** 03/25/2014 **Analyst:** AMB

**Lab Batch ID:** 937044 **Sample:** 652800-1-BKS **Batch #:** 1 Matrix: Solid

Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Chloride	< 2.00	50.0	52.2	104	50.0	51.7	103	1	80-120	20	

AMB **Date Prepared:** 03/21/2014 **Date Analyzed:** 03/25/2014 **Analyst:** 

**Lab Batch ID:** 937035 **Sample:** 652801-1-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	52.9	106	50.0	51.3	103	3	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



### Form 3 - MS Recoveries

Project Name: VGWU Satellte 4



Work Order #: 481522

**Lab Batch #:** 937035 **Project ID:** 074633

 Date Analyzed:
 03/25/2014
 Date Prepared:
 03/21/2014
 Analyst:
 AMB

 QC- Sample ID:
 481522-021 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg MATRIX / MATRIX SPIKE RECOVERY STUDY **Parent** Spiked Sample **Inorganic Anions by EPA 300** Sample Flag Spike Result %R Limits Result Added [D] %R [C]

 Analytes
 [A]
 [B]
 Bo-120

 Chloride
 553
 528
 1160
 115
 80-120

**Lab Batch #:** 937035

 Date Analyzed:
 03/25/2014
 Date Prepared:
 03/21/2014
 Analyst:
 AMB

 QC- Sample ID:
 481534-001 S
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: mg/kg MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	2800	2580	6310	136	80-120	X

**Lab Batch #:** 937044

 Date Analyzed:
 03/25/2014
 Date Prepared: 03/21/2014
 Analyst: AMB

 QC- Sample ID:
 481522-001 S
 Batch #: 1
 Matrix: Soil

QC- Sample ID: 481522-001 S

Reporting Units: mg/kg

MATRIX / MATRIX SPIKE RECOVERY STUDY

	MAI	MIA / MIA	I KIA SI IKE	KECO	VERI SIU	DI
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes	[A]	[B]	[0]	[D]	7010	
Chloride	163	250	462	120	80-120	

**Lab Batch #:** 937044

 Date Analyzed:
 03/25/2014
 Date Prepared: 03/21/2014
 Analyst: AMB

 QC- Sample ID:
 481522-011 S
 Batch #: 1
 Matrix: Soil

Reporting Units: mg/kg MATRIX / MATRIX SPIKE RECOVERY STUDY

	MATRIA / MATRIA STIRE RECOVERT STUDI								
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag			
Analytes	[A]	[B]							
Chloride	1880	1060	3250	129	80-120	X			

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

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### **Sample Duplicate Recovery**



**Project Name: VGWU Satellte 4** 

**Work Order #:** 481522

**Lab Batch #:** 936721 **Project ID:** 074633

 Date Analyzed:
 03/20/2014 17:15
 Date Prepared:
 03/20/2014
 Analyst:
 WRU

 QC- Sample ID:
 481532-001 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE / SAMPLE DUPLICATE RECOVERY						
Percent Moisture  Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag		
Percent Moisture	8.04	8.06	0	20			

Lab Batch #: 936721

 Date Analyzed:
 03/20/2014 17:15
 Date Prepared:
 03/20/2014
 Analyst: WRU

 QC- Sample ID:
 481642-001 D
 Batch #:
 1
 Matrix:
 Soil

SAMPLE / SAMPLE DUPLICATE RECOVERY **Reporting Units: %** Parent Sample Sample Control **Percent Moisture** RPD **Duplicate** Limits Result Flag Result %RPD [A] [B] Analyte Percent Moisture <1.00 <1.00 U

**Lab Batch #:** 936724

 Date Analyzed:
 03/20/2014 17:15
 Date Prepared:
 03/20/2014
 Analyst:
 WRU

 QC- Sample ID:
 481522-002 D
 Batch #:
 1
 Matrix:
 Soil

**Reporting Units: %** SAMPLE / SAMPLE DUPLICATE RECOVERY Sample Control **Percent Moisture** Parent Sample **Duplicate** RPD Limits Result Flag Result %RPD [A] [B] Analyte Percent Moisture 4.44 4.39 20

**Lab Batch #:** 936724

 Date Analyzed:
 03/20/2014 17:15
 Date Prepared:
 03/20/2014
 Analyst: WRU

 QC- Sample ID:
 481522-012 D
 Batch #:
 1
 Matrix:
 Soil

SAMPLE / SAMPLE DUPLICATE RECOVERY **Reporting Units: % Percent Moisture** Parent Sample Sample Control RPD **Duplicate** Limits Result Flag Result %RPD [A] [B] Analyte 9.34 9.09 Percent Moisture 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



### **Sample Duplicate Recovery**



**Project Name: VGWU Satellte 4** 

**Work Order #:** 481522

**Lab Batch #:** 936912 **Project ID:** 074633

 Date Analyzed:
 03/24/2014 13:05
 Date Prepared:
 03/24/2014
 Analyst:
 WRU

 QC- Sample ID:
 481586-002 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: % SAMPLE / SAMPLE DUPLICATE RECOVE						
Percent Moisture	Parent Sample Result [A]	Duplicate Result	RPD	Control Limits %RPD	Flag	
Analyte		[B]				
Percent Moisture	3.95	4.08	3	20		

**Lab Batch #:** 936912

 Date Analyzed:
 03/24/2014 13:05
 Date Prepared:
 03/24/2014
 Analyst:
 WRU

 QC- Sample ID:
 481781-001 D
 Batch #:
 1
 Matrix:
 Soil

SAMPLE / SAMPLE DUPLICATE RECOVERY **Reporting Units: %** Parent Sample Sample Control **Percent Moisture** RPD **Duplicate** Limits Result Flag Result %RPD [A] [B] Analyte Percent Moisture 13.7 15.0 20

**Lab Batch** #: 936913

 Date Analyzed:
 03/24/2014 13:05
 Date Prepared:
 03/24/2014
 Analyst:
 WRU

 QC- Sample ID:
 481522-026 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[B]			
Percent Moisture	3.34	3.63	8	20	

**Lab Batch #:** 936913

 Date Analyzed:
 03/24/2014 13:05
 Date Prepared:
 03/24/2014
 Analyst: WRU

 QC- Sample ID:
 481523-010 D
 Batch #:
 1
 Matrix:
 Soil

Reporting Units: %	SAMPLE	/ SAMPLE	DUPLIC	ATE REC	OVERY
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte		[2]			
Percent Moisture	21.0	23.9	13	20	

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



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Service Center - San Antonio, Texas (210-509-3334)		www.xenco.com		Xenco Quote #	Xenco	Xenco Job #	7	P P S I C
Client / Reporting Information		Dualinet Information		Analy	Analytical Information			Matrix Codes
Company Name / Branch: CRA	Project Na	Project Name/Number:	1074633					A= Air
2135 S. Loop 250 W. Midland,	Project Location	6						GW =Ground Water DW = Drinking Water
Diferciperson @ craworld.com 686-0086	(432) Invoice To:							SW = Surface water SL = Sludge
Chris Knight / Jake Ferenz	PO Number:	SK.					***************************************	W = Wipe
)ohn				le				WW Water
	Collection	Numbe	Number of preserved bottles	rrid			Į.	ww= waste water
No. Field ID / Point of Collection	Sample Depth Date	Matrix bottles HCI NaOH/Zn Accetate	HNO3 H2SO4 NaOH NaHSO4 MEOH NONE	Chlo			1	of Comments
1074633~JMF-SB	-5"	3 5		×			-	- GRA CATHERING
2 074633-JMF-SBI	M/81/E	PG57 S 1	×?	*				
3 074633-JMF-SB1	20° 3/18/14 6	095951	×	×				
-)MF-SB	11/31/5	1005 5 1	×	×				
-)MF-5BZ	0 3/18/14		×	×				
-JMF-582	3/18/14	- 1	×	×				
-JMF-582	12 3/18/14	1047 S 1	×	×				
33-JMF-5B2	35 3/18/14	1052 S 1	×	×				
	1 hysyle 05	1 S 951	×	×				
10 074633-JMF-5B3	D 3/18/14 1	1213 5 1	X	×				
Turnaround Time ( Business days)		Data Deliverable Information	on		Notes:			
Same Day TAT 5 Day TAT		Level II Std QC	Level IV (Full Data Pkg /raw data)	raw data)				
Next Day EMERGENCY		Level III Std QC+ Forms	TRRP Level IV			***************************************		
2 Day EMERGENCY Contract TAT		Level 3 (CLP Forms)	UST/RG-411		A CONTRACTOR CONTRACTO			
3 Day EMERGENCY		TRRP Checklist						
TAT Starts Day received by Lab, if received by 3:00 pm	ım				FED-EX / UPS: Tracking #	cking#		
ampler:	Date Tipe: 225 1	Date Tipe:  Beceived By:  Silvelly 1225 1 M. A. W. Date Tipe:  Date Date Tipe:  Date Date Tipe:  Date Date Date Date Date Date Date Date	Relinquished By:	Date Time;	1412 '25-	ed By:		
Suffinguished by D		Received By: 0	Relinquished By:	Date Time:		ed By:		
Relinquished by: D. 5	Date Time: R	Received By:	Custody Seal #	Preserved where applicable	e applicable	On Ice	Cooler Temp.	Thermo. Corr. Factor
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliales, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negiciated under a fully executed client contract.	d purchase order from cli	ent company to XENCO Laboratories and its a	filliates, subcontractors and assig	ns XENCO's standard ter	ms and conditions of se	rvice unless previou	usly negiotiated unde	r a fully executed client contract.



### CHAIN OF CUSTODY

Stafford, Texas (281-240-4200) Setting the Standard since 1990

Dallas, Texas (214-902-0300)				Norcross, Georgia (770-449-8800)	ia (770-449-8800)	Tampa, Florida (813-620-2000)	13-620-2000)
Service Center - San Antonio, Texas (210-509-3334)	xas (210-509-3334)	www.xenco.com	co.com			48	PPN
				Anal	Analytical Information		Matrix Codes
Company Name / Branch: (R)		Project Name/Number:	1674/022				A= Air
Company Address:	1 1 1 1 1	Project Location:	-				S = Soil/Sed/Solid GW =Ground Water
2135 5, Loop 250 W. Midland	400	iea County, NM	3				DW = Drinking Water P = Product
Starting Con Burnild Com Bu-0086	11d.com 676-036	Invoice To:					SW = Surface water SL = Sludge
Project Contact: Chris Knight / Jake /	terene	PO Number:		٩			W = Wipe 0 = 0il
Samplers's Name: John Fe	Ferreson			id			WW-Wasta W
		Collection	Number of preserved bottles	31			ALAN - ANGOIG ANGIGI
No. Field ID / Point of Collection	Collection		Zn !	M			
	Sample Depth	Date Time Matrix bottles	HCI NaOH/Z Acetate HNO3 H2SO4 NaOH NaHSO MEOH NONE				Field Comments
1 074633-JMF-SB3		3/18/14 12/6 S 1		×			
2 674633- JMF-5B3	B3 15°	3/18/14 1/2/18	×	×			
3 074633-JMF-5B3	B3 35	3/18/14 1222 5 1	×	×		***************************************	
4 674633-JMF-SBH	151	1 S 8h21 h/8/6	×	×			
5 074633-JMF-SBY	5 KBY	1 S 1521 HIBIR	×.				
1	584 15	3/18/M 1254 5 1	×	×			
7 074633-JMI	SIBH 35	3/18/14 1308 5 1	×	×			
8 074633-JMF-	5134 SO	3/18/11 1327 5 1	×	×			
0 074633-JMF-5B5	585 0	3/18/14 1343 S 1	×	×			
10 074633-JMF-5B5	585 5.	1 5 9/15/1 11/8/16	×	X			
Turnaround Time ( Business days)			Data Deliverable Information	-	Notes:		
Same Day TAT	5 Day TAT	Level II Std QC	Level IV (Full Data Pkg /raw data)	) /raw data)			
Next Day EMERGENCY	W7 Day ТАТ	Level III Std QC+ Forms	ms TRRP Level IV				
2 Day EMERGENCY	Contract TAT	Level 3 (CLP Forms)	UST / RG -411				
3 Day EMERGENCY		TRRP Checklist					
TAT Starts Day received by Lab, if received by 3:00 pm	ab, if received by 3:00 pm				FED-EX / UPS: Tracking #	king #	
Bollon in the sample.	SAMPLE CUSTODY MUST BE	CUMENTER	S CHANGE POSSESSION, INCLUDING COU	_ m			
1 Paintains and Dempier:	3/19/14	1225	Relinquished by:	3/G/	14/2/2	d By:	
3	Date ime	e: Heceived By:	Helinquished By:	Date I ime:	Heceived By:	в Ву:	
Relinquished by:	Date Time:	e: Received By:	Custody Seal #	Preserved where applicable	applicable	On Ice Cooler Temp.	Thermo, Corr. Factor
•		0					

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Lakeland, Florida (863-646-8526)

Odessa, Texas (432-563-1800)



### CHAIN OF CUSTODY

Odessa, Texas (432-563-1800)

Lakeland, Florida (863-646-8526)

Stafford, Texas (281-240-4200) Setting the Standard since 1990

Dallas, Texas (214-902-0300)			Non	Norcross, Georgia (770-449-8800)	)) Tampa, Florida (813-620-2000)	3-620-2000)
Service Center - San Antonio, Texas (210-509-3334)	xas (210-509-3334)	www.xenco.com		Xenco Quote # Xe	Xenco Job #	481533
Client / Reporting Information		Project information		Analytical Information		Matrix Codes
Company Name / Branch: CRA	4	Project Name/Number: te 4	074633			A= Air S = Soil/Sed/Solid
2135 S. Loop 250 W. Midland, TX	midland, TX	Project Location: Lea County, NM				GW =Ground Water DW = Drinking Water P = Product
) Fergerson Octamo Idnom	Phone No: (432)	Invoice To:				SW = Surface water SL = Sludge WW= Waste Water
Project Contact: Chris Knisht/Jake Ferenz	crenz	PO Number:	2			W = Wipe O = Oil
mye)	Tergerson		di			WW= Waste Water
No. Field ID / Point of Collection	<b>L</b> 2000	Collection	amber of preserved bottles			
10/32 IME-485		Depth Date Time Matrix bottles E 2	Acet HNC H2S NaO NaH MEC			Field Comments
		3/18/14 1354				
3 074633-JMF-586	586 0	3/18/14 1417	× ×			
4 074633-JMF-SBG		11/21/E	×			
5 074633-JMF-5B6	586 15	5 3/18/4 1422 S 1	× ×			
6 074633-JMF-	MF-586 35	5 3/18/14/14/26 5	* X			
7						
8						
9						
10 Turnaround Time ( Business days)		Pata Deliverable Information		National		
Same Day TAT	5 Day TAT	Level II Std QC	Level IV (Full Data Pkg /raw data)	lata)		
Next Day EMERGENCY	17 Day TAT	Level III Std QC+ Forms	TRRP Level IV			
2 Day EMERGENCY	Contract TAT	Level 3 (CLP Forms)	UST / RG -411			
3 Day EMERGENCY		TRRP Checklist				
TAT Starts Day received by Lab, if received by 3:00 pm	ab, if received by 3:00 pm			FED-EX / UPS: Tracking #	: Tracking #	
Remuished by Sampler:	Date	SAMPLE CUSTOUT MUST BE DOCUMENTED BELOW ENOT TIME SAMPLES CHANGE POSSESSION, INCLUDING COUNTRY LEVERY  Received By:  Relinquished By:  2	Relinquished By:	e Time:	Received By:	
Belinquished by	Date	Date Time: Received By:	Relinquished By:	1147	Received By:	
Relinquished by:	Date	Date Time: Received By:	Custody Seal #	Preserved where applicable	On ice Cooler Temp.	Thermo. Corr. Factor

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### **XENCO Laboratories** Prelogin/Nonconformance Report- Sample Log-In



Client: Conestoga Rovers & Associates

Date/ Time Received: 03/19/2014 12:25:00 PM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Work Order #: 481522 Temperature Measuring device used :		leasuring device used :
	Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?		2.5
#2 *Shipping container in good condition	on?	Yes
#3 *Samples received on ice?		Yes
#4 *Custody Seals intact on shipping of	ontainer/ cooler?	N/A
#5 Custody Seals intact on sample bot	tles?	N/A
#6 *Custody Seals Signed and dated?		N/A
#7 *Chain of Custody present?		Yes
#8 Sample instructions complete on Cl	nain of Custody?	Yes
#9 Any missing/extra samples?		No
#10 Chain of Custody signed when reli	nquished/ received?	Yes
#11 Chain of Custody agrees with sam	ple label(s)?	Yes
#12 Container label(s) legible and intac	pt?	Yes
#13 Sample matrix/ properties agree w	ith Chain of Custody?	Yes
#14 Samples in proper container/ bottle	e?	Yes
#15 Samples properly preserved?		N/A
#16 Sample container(s) intact?		Yes
#17 Sufficient sample amount for indic	ated test(s)?	Yes
#18 All samples received within hold ti	me?	Yes
#19 Subcontract of sample(s)?		No
#20 VOC samples have zero headspace	ce (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	Ruriko Konuma	Date: 03/19/2014
Checklist reviewed by:	Kelsey Brooks	Date: <u>03/19/2014</u>