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

October 1, 2015

Kellie Jones
Environmental Specialist, District 1
New Mexico Oil Conservation Division
811 South First St.
Artesia, NM 88210

Re: Central Vacuum Unit 47H Soil Assessment and Delineation Activities Report

Dear Ms. Jones:

Please find enclosed for your files copies of the following report for the Central Vacuum Unit 47H pit closure.

- *CVU 47H Pit Closure – 2015 Soil Assessment and Delineation Activities Report, Unit E - Section 6 – Township 18 South – Range 35 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 closure activities associated with the closure of the operational pit at the associated well site. 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,

Rob Speer
Environmental Project Manager

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Chevron (CEMC)	Contact: Rob Speer
Address: 1400 Smith Street, Houston, Texas 77002	Telephone No. (713) 372-6117
Facility Name: Central Vacuum Unit No. 47H	Facility Type: Production

Surface Owner: State of New Mexico	Mineral Owner: State of New Mexico	API No. 30-025-08532

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	31	17S	35E					Lea

Latitude: 32.796991° **Longitude:** -103.490536°

NATURE OF RELEASE

Type of Release: N/A	Volume of Release: Zero (0) bbls/ga	Volume Recovered: N/A
Source of Release: N/A	Date and Hour of Occurrence: N/A	Date and Hour of Discovery: N/A
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Elevated chloride concentrations in soil southeast (outside) of existing reserve pit (CVU 47H); Reserve Pit was reclaimed and closed under C-144 Form; chloride concentrations in soil outside closed reserve pit delineated by soil boring program.

Describe Area Affected and Cleanup Action Taken.*

There is no NMOCD documented release filings associated with the CVU 47H reserve pit. However, the reserve pit was remediated or reclaimed by order of the NMOCD District 1, Hobbs, NM office. A pit closure report was submitted under C-144 Form, documenting the activities. By order of the NMOCD, soil borings were installed in 2012 and 2015 to obtain delineation regarding elevated chlorides in soil southeast (outside) the existing reserve pit.

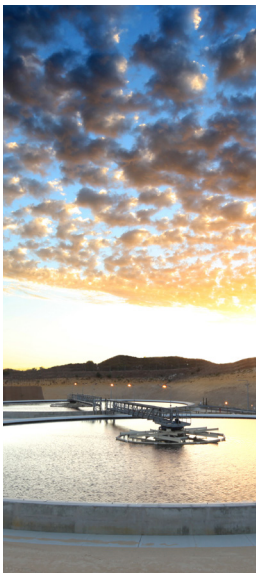
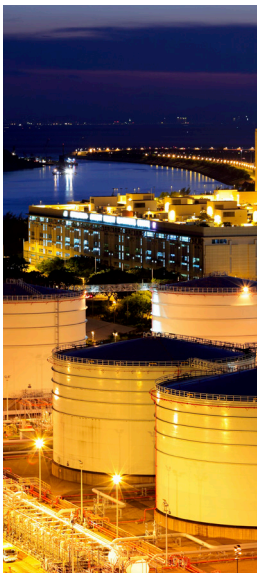
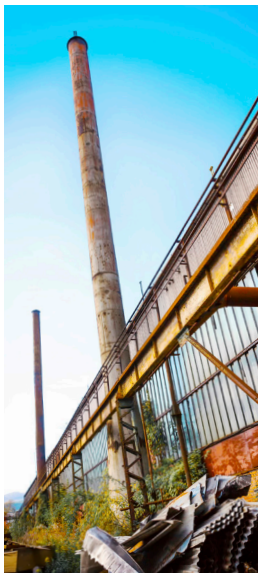
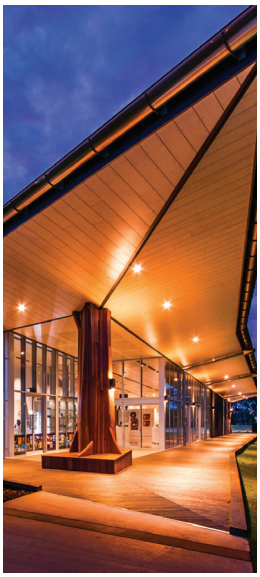
A comprehensive soil assessment was performed to confirm the extents of the soil impacts. Results of the assessment activities are provided in the attached report.

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

Signature: Rob Speer	OIL CONSERVATION DIVISION	
Printed Name: Rob Speer	Approved by Environmental Specialist:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: rspeer@chevron .com	Conditions of Approval:	Attached ☐
Date: 9-30-15 Phone: (713) 372-6117		

* Attach Additional Sheets If Necessary

Final


Soil Assessment and Delineation Activities Report

Central Vacuum Unit No. 47H

Unit A, Section 31, Township 17 South, Range 35 East Lovington, New Mexico

Chevron Environmental Management Company

1755 Wittington Place, Suite 500 Dallas Texas 75234

073821 | Report No 4 | September 29 2015

Soil Assessment and Delineation Activities Report

Central Vacuum Unit No. 47H
Unit A, Section 31, Township 17 South, Range 35 East
Lovington, 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

073821 | Report No 4 |September 29, 2015

Table of Contents

Figure Index

Table Index

Appendices

1. Introduction

GHD is pleased to present this Soil Assessment and Delineation Activities Report to Chevron Environmental Management Company (CEMC) for the Central Vacuum Unit No. 47H location (hereafter referred to as the "Site").

This Report serves as an attachment to Form C-141 documenting soil delineation activities performed by Chevron in association with Remediation Permit No. 1483 (RP No. 1483); which was assigned by the New Mexico Conservation Division (NMOCD) District I, Hobbs, New Mexico office.

2. Project Information and Background

The Site is located in Unit A, Section 31, Township 17 South, Range 35 East, approximately 0.94-miles southeast of Buckeye, New Mexico, in central Lea County (Figure 1 and Figure 2).

In a correspondence dated July 9, 2007, an environmental site consultant (Environmental Plus, Inc.-EPI), on behalf of Chevron USA (Chevron), submitted to the NMOCD District I, Hobbs, New Mexico office a request for pit closure work plan. The work plan summarized field activities completed by EPI in January and February 2006. An area around the former pit location was excavated to approximately 10-feet below ground surface (bgs) and an estimated 2,622 cubic yards (cy) of drilling mud/soil was transported to Sundance Services, Inc. Subsequent to excavation, soil samples from two soil borings (SB-1 and SB-2) at the base of the excavation and eight sidewall samples (NSWW-3, WSWN-3, WSWS-3, SSWW-3, SSWE-3, ESWS-3, ESWN-3 and NSWE-3) of the excavation were collected. Soil boring data demonstrated decreasing chloride concentrations to below 250 mg/kg in each of the pit floor borings. Sidewall samples indicated elevated chloride impacts at the south/southeastern portions of the excavation – at a depth of 3-feet.

On July 11, 2007, the pit closure work plan was denied approval by the NMOCD District I, Hobbs, New Mexico office because of elevated chloride concentrations still present on the south/southeastern portion of the existing excavation. The NMOCD recommended these "hot spots" be removed and a closure proposal be resubmitted upon lateral delineation.

In December 2010, CEMC assumed the responsibilities of the pit closure activities at the Site from Chevron. CEMC contracted GHD to manage pit closure activities. On January 11, 2011, GHD, CEMC and AECOM met at the NMOCD District I, Hobbs, New Mexico office to discuss the path forward at the Site. Topics of discussions included 2007 work plan submittal and objectives to close the pit as directed by the NMOCD.

On April 17, 2012, X-Ray Locating Services from Houston, Texas performed an x-ray utility clearance assessment of the affected area. The purpose of this assessment was to locate all active existing utilities where access points were observed. Electrical and multiple unknown underground lines were identified within the assessment area (Figure 3).

On June 27, 2012, GHD and CEMC met at the NMOCD District I, Hobbs, New Mexico office to further discuss the path forward at the Site. Topics of discussion included, information from GHD's Closure Request Workplan, prepared March 18, 2011, additional delineation, proper closure documentation (C-141/C-144 form) submittal, and reporting. The NMOCD requested additional

assessments to be completed to further evaluate the vertical extent of chloride impacts for areas outside of the excavated pit boundaries.

In December 2012, GHD mobilized to the Site to perform soil boring activities. Soil borings (SB-3 and SB-4) were drilled to 50-feet below ground surface (bgs) to assess areas outside (southeast) of the previously excavated pit boundaries. Results of the 2012 soil boring and sampling activities indicated the presence of elevated chloride concentrations in soil. A soil analytical summary of the 2012 activities is provided in Table 2, and on Figure 4.

On July 9, 2014, GHD (Tom Larson) and CEMC (Kegan Boyer) met with NMOCD Environmental Specialist; Tomas Oberding, Ph.D., at the NMOCD District I, Hobbs, New Mexico office to discuss a pit closure plan and backfill request prepared by GHD on behalf of CEMC. The Site's history and analytical findings were reviewed. It was concluded by all parties that the existing open pit excavation should be backfilled as appropriate to the pit closure plan and backfill request prepared by GHD and presented to the NMOCD in July of 2014. At the meeting, the NMOCD indicated that the proposed backfilling and closure activities should be documented under an NMOCD Form C-144.

Separately and in addition, the NMOCD requested that delineation efforts to the southeast of the excavation be explored further via soil borings and analytical sampling to be completed and reported under an NMOCD Form C-141 during the 2015 calendar year. A detailed version of the meeting notes are attached as Appendix A.

GHD performed the proposed backfilling and closure activities as approved by the NMOCD in March of 2015. GHD prepared and submitted a Remediation and Pit Closure Activities Report as an attachment to NMOCD C-144 pit closure Form to CEMC on April 23, 2015; which was subsequently submitted to the NMOCD.

GHD returned to the Site on August 19, 2015 to perform soil boring activities as discussed in the July 9, 2014 meeting between Chevron, GHD, and the NMOCD. The results of those activities are provided herein.

3. Recommended Remediation Action Limits

Information available on the Petroleum Recovery Research Center (PRRC) Mapping Portal and the United States Geological Survey (USGS) Current Water Database for the Nation; indicate the depth to groundwater at the Site is less 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 250 mg/kg for chlorides.

4. Drilling and Sampling - 2015

On August 11, 2015, Harrison and Cooper, Inc. (HCI) of Lubbock, Texas submitted an initial New Mexico One Call utility locate ticket (2015331597). GHD submitted a MCBU Chevron Dig Plan with appropriate attachments for approval to the Chevron Buckeye Field Management Team. On August 19, 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. Soil boring (SB-1) was advanced to approximately 50-feet bgs and soil boring (SB-2) was advanced to approximately 90-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 boring (SB-2) being advanced to 90-feet bgs. Soil borings were logged in accordance with the Unified Soil Classification System and recorded. Visual representation of the 2012 and 2015 boring logs can be found in Appendix B.

Soil samples were collected for laboratory analysis from each boring (SB-1 and SB-2) 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 in Midland, Texas for analysis of chlorides by EPA Method 300/300.1. The soil laboratory analytical reports for the 2012 and 2015 sampling activities are included as Appendix C.

4.1 Soil Sampling Analytical Results - 2015

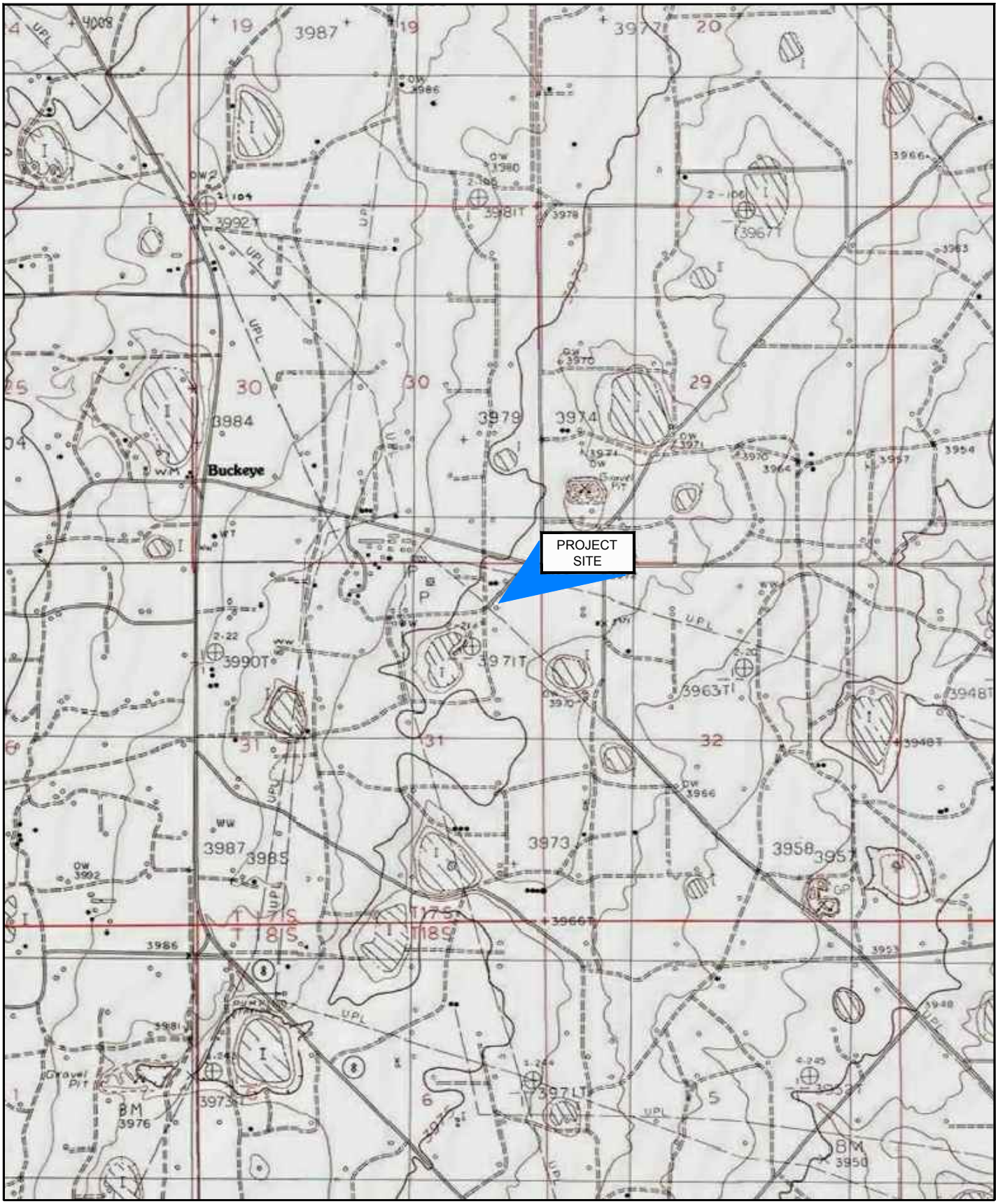
The soil type observed in soil samples collected during the 2015 drilling program consisted of dense, weathered, dull yellow to orange caliche from the surface to approximately 18-feet bgs. Light gray very fine grained sand interbedded with poor to moderately cemented very fine grained sandstone was noted to approximately 25-feet bgs becoming yellowish orange at 28-feet bgs and continuing to a total depth of approximately 90-feet bgs. Moisture content observed in the soil samples was dry in all instances with the exception of soil boring (SB-2) at the 70-foot interval; which was noted as being moist.

Samples collected from SB-1 were below the Site RRAL (250 mg/kg) for chloride concentrations in all instances; with the exception of the 5-foot interval (421 mg/kg). Soil boring (SB-2) depicted decreasing concentrations with depth to the 80-foot interval at 101 mg/kg, respectively. A soil analytical summary of the 2015 results is presented in Table 3. A Site Details and Analytical Results Map (2012 – 2015) is presented as Figure 4.

5. Conclusions

There is no NMOCD documented release filings associated with the Site or the former reserve pit located on-Site. The reserve pit closure process has been executed fully and reported under an NMOCD C-144 Form as directed by the NMOCD. In addition, and as directed by the NMOCD; a thorough subsurface investigation was implemented at the Site with regard to areas outside (southeast) the reserve pit. Evaluation of the analytical data obtained from soil assessment and delineation activities performed in December 2012 and August 2015 indicates that a moderate level of chloride concentrations remain in the subsurface. However, it is noted that chloride concentrations are decreasing with depth and Site RRAL have been delineated both vertically and horizontally. This data from the soil boring program demonstrates that the nature and extent of chloride impacts to soil are minimal and the potential risk to impact groundwater is extremely low. Based on data provided in this report, no further delineation efforts are warranted at the Site.

Figures



Source: USGS 7.5 Minute Quad "Buckeye and Lovington SW, Texas"

Lat/Long: 32.7970° North, 103.4906° West

0 1000 2000ft

Coordinate System:
NAD 1983 StatePlane-
New Mexico East (US Feet)

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LEA COUNTY, NEW MEXICO
CENTRAL VACUUM UNIT No. 47H

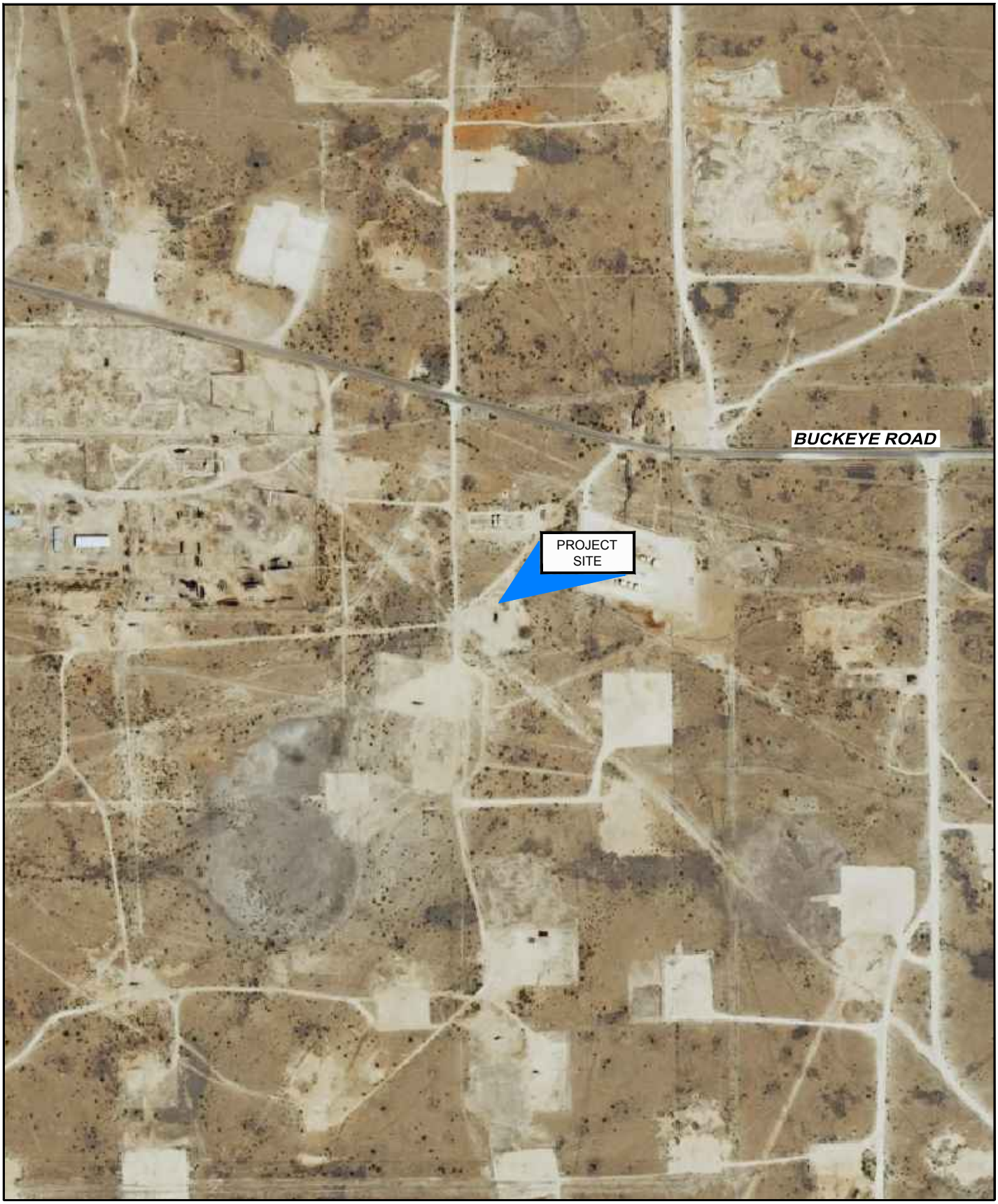
073821-00

Sep 17, 2015

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\07----\073---\073821-Chevron-Central Vacuum Unit #47H\073821-00\073821-00(004)\073821-00(004)GN-DL001.dwg



Source: USDA FSA Imagery, May 10, 2014

Lat/Long: 32.7970° North, 103.4906° West

0 250 500ft

Coordinate System:
NAD 1983 StatePlane-
New Mexico East (US Feet)

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LEA COUNTY, NEW MEXICO
CENTRAL VACUUM UNIT No. 47H

073821-00

Sep 17, 2015

SITE AERIAL MAP

FIGURE 2

CAD File: I:\CAD\Files\07----\073---\073821-Chevron-Central Vacuum Unit #47H\073821-00\073821-00(004)\073821-00(004)GN-DL001.dwg

NOTES:

1. Subsurface utilities identified by Ground Penetrating Radar (GPR) survey conducted in 2012.

SB-4

SB-3

SB-2

SB-1

LEGEND

- Soil Boring Location - 2012
- Soil Boring Location - 2015
- Approximate Boundary of Remedial Closure Activities
- Backfill and Remediated Area
- Active Oil Field Equipment
- Approximate Surface and Subsurface Pipelines

Source: UDSA FSA Imagery, May 10, 2014

Lat/Long: 32.7970° North, 103.4906° West

0 20 40ft

Coordinate System:
NAD 1983 StatePlane-
New Mexico East (US Feet)

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LEA COUNTY, NEW MEXICO
CENTRAL VACUUM UNIT No. 47H

073821-00

Sep 22, 2015

SITE DETAILS AND UTILITIES MAP

FIGURE 3

CAD File: I:\CAD\Files\07----\073---\073821-Chevron-Central Vacuum Unit #47H\073821-00\073821-00(004)\073821-00(004)GN-DL001.dwg

NOTES:

1. All analytical results reported in (mg/kg) milligrams per kilogram.
2. Floor Sample-031015 indicates a 5-point composite sample of excavation floor.
3. Depicted remedial closure activity boundaries pretain to previously submitted pit closure report under NMOCD C-144 Form.

Floor Sample-031015[3]	
Date	03/15/15
Depth	Surface
BTEX	<0.00128
TPH (GRO & DRO)	<19.2
Chloride	4.38

NE-47H-031915	
Date	03/19/15
Depth	5'
Chloride	15.4

E-47H-031915	
Date	03/19/15
Depth	5'
Chloride	15.7

SE-47H-031915	
Date	03/19/15
Depth	5'
Chloride	13.6

SB-3 12/17/12					
Depth	10'	20'	30'	40'	50'
Chloride	1250	906	537	1360	1430

SB-4 12/17/12					
Depth	10'	20'	30'	40'	50'
Chloride	1230	754	274	209	87.3

SB-2 08/19/15									
Depth	0'	5'	10'	15'	20'	30'	40'	50'	60'	80'
Chloride	1540	1470	462	611	680	306	539	554	1090	101

SB-1 08/19/15								
Depth	0'	5'	10'	15'	20'	30'	40'	50'
Chloride	75.7	421	17.8	123	97.0	93.7	68.9	15.5

NE-47H
E-47H
SE-47H
SB-3
SB-4
SB-2
SB-1

LEGEND

- Soil Boring Location - 2012
- Soil Boring Location - 2015
- Excavated Sidewall Sample Location
- 5-point Composite Sample Location
- Approximate Boundary of Remedial Closure Activities
- Approximate Excavated Area
- Backfill and Remediated Area
- Depth — Depth of Sample (ft)
- BTEX — Benzene, Toluene, Ethylbenzene and Xylenes Concentration
- TPH — Total Petroleum Hydrocarbons Concentration
- DRO — TPH as Diesel Range Organics
- GRO — TPH as Gasoline Range Organics

Source: UDSA FSA Imagery, May 10, 2014

Lat/Long: 32.7970° North, 103.4906° West

0 20 40ft

Coordinate System:
NAD 1983 StatePlane-
New Mexico East (US Feet)

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LEA COUNTY, NEW MEXICO
CENTRAL VACUUM UNIT No. 47H

073821-00

Sep 29, 2015

SITE DETAILS AND ANALYTICAL RESULTS MAP

FIGURE 4

CAD File: I:\CAD\Files\07----\073---\073821-Chevron-Central Vacuum Unit #47H\073821-00\073821-00(004)\073821-00(004)GN-DL001.dwg

Tables

Table 1
Soil Analytical Summary - 2012
Central Vacuum Unit No. 47H
Lea County, New Mexico

Sample ID	Sample Date	Depth (bgs)	Chlorides (mg/kg)
NMOCD Recommended Remediation Action Levels			**250 (mg/kg)**
SB-3	12/17/12	10'	1,250
SB-3	12/17/12	20'	906
SB-3	12/17/12	30'	537
SB-3	12/17/12	40'	1,360
SB-3	12/17/12	50'	1,430
SB-4	12/17/12	10'	1230
SB-4	12/17/12	20'	754
SB-4	12/17/12	30'	274
SB-4	12/17/12	40'	209
SB-4	12/17/12	50'	87.3

Notes:

1. All analytical results reported in (mg/kg) milligrams per kilogram
2. Chloride analyses by EPA Method 300.0
3. Highlighted cells indicate concentrations exceeding guidance RRALs
4. bgs - below ground surface
5. Depth of samples reported in feet

Table 2
Soil Analytical Summary - 2015
Central Vacuum Unit No. 47H
Lea County, New Mexico

Sample ID	*Sample Date*	*Depth (bgs)*	*Chlorides (mg/kg)*
NMOCD Recommended Remediation Action Levels			***250 (mg/kg)***
SB-1	8/19/15	0'	75.7
SB-1	8/19/15	5'	421
SB-1	8/19/15	10'	17.8
SB-1	8/19/15	15'	123
SB-1	8/19/15	20'	97.0
SB-1	8/19/15	30'	93.7
SB-1	8/19/15	40'	68.9
SB-1	8/19/15	50'	15.5
SB-2	8/19/15	0'	1540
SB-2	8/19/15	5'	1470
SB-2	8/19/15	10'	462
SB-2	8/19/15	15'	611
SB-2	8/19/15	20'	680
SB-2	8/19/15	30'	306
SB-2	8/19/15	40'	539
SB-2	8/19/15	50'	554
SB-2	8/19/15	60'	1090
SB-2	8/19/15	80'	101

Notes:

1. All analytical results reported in (mg/kg) milligrams per kilogram
2. Chloride analyses by EPA Method 300/300.1
3. Highlighted cells indicate concentrations exceeding guidance RRALs
4. bgs - below ground surface
5. Depth of samples reported in feet

Appendices

Appendix A
NMOCD Meeting Minutes - 2014

CONESTOGA-ROVERS & ASSOCIATES

MEETING MINUTES

Reference No. 073821

PROJECT: RP-1483; API 3002508532 Chevron/CVU 47H pit and release closures

CLIENT: Chevron Environmental Management Company CLIENT REFERENCE NO.:

RE: Backfilling Request and OCD Approval Verification

LOCATION: OCD District 1 Office, Hobbs, NM DATE: 7/9/14 TIME: 830-930

Participants:

Tomas Oberding, Ph.D	OCD Env Specialist		
Kegan Boyer	CEMC Project Manager		
Tom Larson	CRA Project Manager		

Distribution:

☒File ☒Participants			

Item	*Description*	*Action By*
1	RP 1483 Closure Request, historical data and OCD correspondence were reviewed and discuss among participants	all
2	Noted in association with 6/27/12 OCD meeting, installation of two borings was requested. These boring were installed in SE area of pit for assessment and closure purposes and results were reviewed in 7/9/14 meeting.	all
3	Noted that geophysical surveys were conducted in area surrounding pit (prior to boring installation) and numerous subsurface lines were identified on survey. Map of survey, boring/sample results and proposed borings were presented at 7/9 meeting and are attached to this correspondence.	all
4	Discussions by participants on mutual path forward were presented. Primary concerns were: continued presence of 'swimming pool' sized excavation hazard at active wellsite, limitation of significant excavation as a result of numerous subsurface lines in area and need for additional delineation of chloride impacts in aea SE of former reserve pit.	all
5	Participants agreed that best path forward would involve a two pronged approach. First: Use C-144 process to close out reserve pit - OCD stated that backfilling pit excavation immediately is acceptable and necessary to make area safe. Proposed 20 mil liner would extend over SE corner of former pit. A C-144 Closure Plan was submitted to the OCD District 1 office by CEMC (cover letter dated 12/18/13). Future work will be completed in accordance to this Closure Plan. Second: Use C-141 process to assess extent at nature of impacts in vicinity of SB-3. 'Moderate' impacts evaluated by borings may be historical in nature and not necessarily associated with former reserved pit.	all

CONESTOGA-ROVERS & ASSOCIATES

Item	*Description*	*Action By*
	Two borings proposed in area SE of SB-3 per OCD directives. Evaluate if RP-1483 can be utilized for C-141 Final Report or if another RP/C-141 will be required.	
6	Backfilling of reserve pit and two soil boring installation scheduled to occur in 3Q14	CEMC-CRA
	Attachment: Figure 3 - Boring Locations and Chloride Results Map, CVU 47H, Lea County, NM	

☒ Attachments: _____

Prepared By: Tom Larson CRA Date Issued: 7/11/14

This confirms and records CRA's interpretation of the discussions which occurred and our understanding reached during this meeting. Unless notified in writing within 7 days of the date issued, we will assume that this recorded interpretation or description is complete and accurate.

Appendix B
Soil Boring Logs

SOIL BORING LOG

Project: CVU-47H Soil Boring Assesment Activities
Unit A, Section 31, T17S, R35E
Lea County, New Mexico No. SB-3

Client: CEMC
Houston, Texas

File No.: 73821
Date: 12/17/2012
Drilling Co.: Harrison and Cooper, Inc.
Supervisor: Kenny Cooper
Type Rig: Air Rotary
Logged by: Joey Lewandowski

LABORATORY TEST DATA (Results Reported in mg/kg)					FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	PID Reading PPM	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 1220 Finish Time: 1245
						X	10			Caliche: White, tan, indurated at bottom of unit, dense
						X	20			Silty Sand: Tan, loose to firm, dry
						X	30			
						X	40			

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

Water First Noted

Analyzed Sample

SOIL BORING LOG

Project: CVU-47H Soil Boring Assesment Activities
Unit A, Section 31, T17S, R35E
Lea County, New Mexico No. SB-3

Client: CEMC
Houston, Texas

File No.: 73821
Date: 12/17/2012
Drilling Co.: Harrison & Cooper, Inc.
Supervisor: Kenny Cooper
Type Rig: Air Rotary
Logged by: Joey Lewandowski

LABORATORY TEST DATA (Results Reported in mg/kg)					FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	Photo-Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 1245 Finish Time: 1256
										Silty Sand: Tan, brown, only minor firm streaks, dry
							45			
						X	50			TD
							55			
							60			
							65			
							70			
							75			
							80			

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

Water First Noted

Analyzed Sample

SOIL BORING LOG

Project: CVU-47H Soil Boring Assesment Activities
Unit A, Section 31, T17S, R35E
Lea County, New Mexico No. SB-4

Client: CEMC
Houston, Texas

File No.: 73821
Date: 12/17/2012
Drilling Co.: Harrison and Cooper, Inc.
Supervisor: Kenny Cooper
Type Rig: Air Rotary
Logged by: Joey Lewandowski

LABORATORY TEST DATA (Results Reported in mg/kg)					FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	PID Reading PPM	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 1326 Finish Time: 1403
										Caliche: White, tan, dry dense to very dense. Indurated at bottom of unit with white-brown silty sand
							5			
						X	10			
							15			Silty Sand: Tan to white, loose to firm, dry
						X	20			
							25			
						X	30			
							35			
						X	40			

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

Water First Noted

Analyzed Sample

SOIL BORING LOG

Project: CVU-47H Soil Boring Assesment Activities
Unit A, Section 31, T17S, R35E
Lea County, New Mexico No. SB-4

Client: CEMC
Houston, Texas

File No.: 73821
Date: 12/17/2012
Drilling Co.: Harrison & Cooper, Inc.
Supervisor: Kenny Cooper
Type Rig: Air Rotary
Logged by: Joey Lewandowski

LABORATORY TEST DATA (Results Reported in mg/kg)					FIELD DATA				BORING DATA	
Benzene	Toluene	Ethyl-benzene	Xylenes	Total TPH (C6-C35)	Photo-Ionization Detection Reading (ppm)	Sampling	Depth (feet)	Water Level	Screen Interval	Start Time: 1403 Finish Time: 1418
										Silty Sand: Tan, loose to firm, dry
							45			
						X	50			TD
							55			
							60			
							65			
							70			
							75			
							80			

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

Water First Noted

Analyzed Sample

STRATIGRAPHIC LOG

PROJECT NAME: CVU-47H
PROJECT NUMBER: 073821
CLIENT: CEMC
LOCATION: Lea County, New Mexico

HOLE DESIGNATION: SB-1
DATE COMPLETED: August 19, 2015
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: J. Fergerson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE USCS
0	Silty CLAY, dull brown, dry					CL-ML
	Caliche, dull yellowish orange, dense-weathered, dry	1.00		AIR	1.0	
2						
4						
6				AIR	1.0	
8						
10						
12	becomes light gray, weathered-dense, interbedded with poor-moderately cemented very fine grained sandstone			AIR	1.0	
14						
16				AIR	1.0	
18	SAND, light gray, very fine grained, unconsolidated with broken caliche in matrix, interbedded with poor-moderately cemented very fine grained sandstone, dry	18.00				SP
20						
22				AIR	1.0	
24	becomes dull orange, no caliche					
				AIR		

NOTES:

STRATIGRAPHIC LOG

PROJECT NAME: CVU-47H
PROJECT NUMBER: 073821
CLIENT: CEMC
LOCATION: Lea County, New Mexico

HOLE DESIGNATION: SB-1
DATE COMPLETED: August 19, 2015
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: J. Fergerson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE USCS
28	becomes light yellowish orange, moderate to well cemented very fine grained sandstone			AIR	1.0	
30						
32				AIR	1.0	
34	becomes light yellow					
36						
38				AIR	1.0	
40	becomes light yellowish orange					
42				AIR	1.0	
44						
46						
48				AIR	1.0	
50	BOREHOLE TERMINATED @ 50.0ft BGS	50.00				

NOTES:

STRATIGRAPHIC LOG

PROJECT NAME: CVU-47H
PROJECT NUMBER: 073821
CLIENT: CEMC
LOCATION: Lea County, New Mexico

HOLE DESIGNATION: SB-2
DATE COMPLETED: August 19, 2015
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: J. Fergerson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	INTERVAL	REC (ft)	USCS
	Well Pad Material, crushed caliche mixed with sand, dry					
2	Caliche, dull yellowish orange, dense-weathered, dry	2.00		AIR	1.0	
4						
6				AIR	1.0	
8						
10				AIR	1.0	
12	becomes light gray, weathered-dense, interbedded with poor-moderately cemented very fine grained sandstone					
14						
16				AIR	1.0	
18	SAND, light gray, very fine grained, unconsolidated with broken caliche in matrix, interbedded with poor-moderately cemented very fine grained sandstone, dry	18.00				SP
20				AIR	1.0	
22						
24						

NOTES:

STRATIGRAPHIC LOG

PROJECT NAME: CVU-47H
PROJECT NUMBER: 073821
CLIENT: CEMC
LOCATION: Lea County, New Mexico

HOLE DESIGNATION: SB-2
DATE COMPLETED: August 19, 2015
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: J. Fergerson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE USCS
26	becomes dull orange, no caliche					
28	becomes light yellowish orange, moderate to well cemented very fine grained sandstone			AIR	1.0	
30						
32				AIR	1.0	
34						
36				AIR	1.0	
38						
40				AIR	1.0	
42						
44				AIR	1.0	
46						
48						

NOTES:

STRATIGRAPHIC LOG

PROJECT NAME: CVU-47H
PROJECT NUMBER: 073821
CLIENT: CEMC
LOCATION: Lea County, New Mexico

HOLE DESIGNATION: SB-2
DATE COMPLETED: August 19, 2015
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: J. Fergerson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	INTERVAL	REC (ft)	USCS
52				AIR	1.0	
54						
56				AIR	1.0	
58						
60	becomes dull yellowish orange, slightly moist			AIR	1.0	
62						
64				AIR	1.0	
66						
68				AIR	1.0	
70	becomes moist					
72				AIR	1.0	
74						

NOTES:

STRATIGRAPHIC LOG

PROJECT NAME: CVU-47H
PROJECT NUMBER: 073821
CLIENT: CEMC
LOCATION: Lea County, New Mexico

HOLE DESIGNATION: SB-2
DATE COMPLETED: August 19, 2015
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: J. Fergerson

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	INTERVAL	REC (ft)	USCS
76						
78				AIR	1.0	
80	BOREHOLE TERMINATED @ 80.0ft BGS	80.00				
82						
84						
86						
88						
90						
92						
94						
96						
98						

NOTES:

Appendix C
Soil Laboratory Analytical Reports

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

December 29, 2012

Project: CVU #47H

Submittal Date: 12/20/2012
Group Number: 1358061
PO Number: 4052430
Release Number: LEA COUNTY, NM
State of Sample Origin: NM

Client Sample Description	Lancaster Labs (LLI) #
SB-3-10' Grab Soil	6903384
SB-3-20' Grab Soil	6903385
SB-3-30' Grab Soil	6903386
SB-3-40' Grab Soil	6903387
SB-3-50' Grab Soil	6903388
SB-4-10' Grab Soil	6903389
SB-4-20' Grab Soil	6903390
SB-4-30' Grab Soil	6903391
SB-4-40' Grab Soil	6903392
SB-4-50' Grab Soil	6903393

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO Conestoga-Rovers & Associates Attn: Chris Knight

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Respectfully Submitted,

Wendy A. Kozma
Principal Specialist Group Leader

(717) 556-7257

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Analysis Report

Sample Description: SB-3-10' Grab Soil
CVU #47H

LLI Sample # SW 6903384
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 12:25 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	1,250	535	50
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	7.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 19:48	Christopher D Meeks	50
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-3-20' Grab Soil
CVU #47H

LLI Sample # SW 6903385
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 12:30 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**		**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	906	J	1,060	100
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	7.0		0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 20:33	Christopher D Meeks	100
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-3-30' Grab Soil
CVU #47H

LLI Sample # SW 6903386
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 12:39 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	537	264	25
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 20:48	Christopher D Meeks	25
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-3-40' Grab Soil
CVU #47H

LLI Sample # SW 6903387
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 12:45 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	1,360	524	50
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 21:03	Christopher D Meeks	50
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-3-50' Grab Soil
CVU #47H

LLI Sample # SW 6903388
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 12:49 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	1,430	520	50
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	4.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 21:19	Christopher D Meeks	50
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-4-10' Grab Soil
CVU #47H

LLI Sample # SW 6903389
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 13:33 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	1,230	527	50
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 21:34	Christopher D Meeks	50
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

Sample Description: SB-4-20' Grab Soil
CVU #47H

LLI Sample # SW 6903390
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 13:39 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

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CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	754	532	50
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	6.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 21:49	Christopher D Meeks	50
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-4-30' Grab Soil
CVU #47H

LLI Sample # SW 6903391
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 13:51 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	274	102	10
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	3.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 22:34	Christopher D Meeks	10
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-4-40' Grab Soil
CVU #47H

LLI Sample # SW 6903392
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 14:03 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	209	103	10
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	3.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201A	12/28/2012 22:50	Christopher D Meeks	10
01352	Deionized Water Extraction	EPA 300.0	1	12361361201A	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

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Analysis Report

Sample Description: SB-4-50' Grab Soil
CVU #47H

LLI Sample # SW 6903393
LLI Group # 1358061
Account # 11713

Project Name: CVU #47H

Collected: 12/17/2012 14:13 by JL

Submitted: 12/20/2012 10:55
Reported: 12/29/2012 20:02

Conestoga-Rovers & Associates
13091 Pond Springs Road
Austin TX 78729

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation	Dilution Factor
Wet Chemistry	**EPA 300.0**		**mg/kg**	**mg/kg**	
07333	Chloride by IC (solid)	16887-00-6	87.3	51.6	5
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	4.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07333	Chloride by IC (solid)	EPA 300.0	1	12361361201B	12/28/2012 23:05	Christopher D Meeks	5
01352	Deionized Water Extraction	EPA 300.0	1	12361361201B	12/26/2012 07:05	Nancy J Shoop	1
00111	Moisture	SM20 2540 G	1	12356820006A	12/21/2012 22:39	Scott W Freisher	1

Quality Control Summary

Client Name: Conestoga-Rovers & Associates Group Number: 1358061
Reported: 12/29/12 at 08:02 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 12361361201A	Sample number(s): 6903384-6903392							
Chloride by IC (solid)	N.D.	10.0	mg/kg	108		90-110		
Batch number: 12361361201B	Sample number(s): 6903393							
Chloride by IC (solid)	N.D.	10.0	mg/kg	108		90-110		
Batch number: 12356820006A	Sample number(s): 6903384-6903393							
Moisture				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 12361361201A	Sample number(s): 6903384-6903392 UNSPK: 6903384 BKG: 6903384								
Chloride by IC (solid)	-206 (2)		90-110			1,160	1,240	6 (1)	20
Batch number: 12361361201B	Sample number(s): 6903393 UNSPK: 6903393 BKG: 6903393								
Chloride by IC (solid)	101 (2)		90-110			83.8	96.5	14 (1)	20
Batch number: 12356820006A	Sample number(s): 6903384-6903393 BKG: 6903391								
Moisture						3.3	3.4	1	13

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

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Acct. # 11713 Group # 1358061 Sample # 6903384-93

COC # 313115 1 OF 3

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Conestoga - Rovers & Assoc. Acct. #:

Project Name/#: CVU #47H PWSID #:

Project Manager: Ryan Kaiser P.O.#:

Sampler: JOE LEWANDOWSKI Quote #:

Name of state where samples were collected: New Mexico

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other ICE

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water	Sediment	Ground	Surface	Potable	NPDES	Other:	(4) Total # of Containers	(5) Analyses Requested: Preservation Codes: 0	0	Remarks	(6) Temperature of samples upon receipt (if requested)
														Chlorides (300)	SM20 Moisture (2540G)		
SB-3-0-5' 12/17/12	12-17-12	1220	X		X								1	X	X	Hold	
SB-3-5-10'		1225	X		X								1	X	X		
SB-3-10-15'		1228	X		X								1	X	X	Hold	
SB-3-15-20'		1230	X		X								1	X	X		
SB-3-20-25'		1238	X		X								1	X	X	Hold	
SB-3-25-30'		1239	X		X								1	X	X		
SB-3-30-35'		1242	X		X								1	X	X	Hold	
SB-3-35-40'		1245	X		X								1	X	X		
SB-3-40-45'		1247	X		X								1	X	X	Hold	
SB-3-45-50'		1249	X		X								1	X	X		

(7) **Turnaround Time Requested** (TAT) (please circle): (Standard) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 1/4/13
Rush results requested by (please circle): Phone (E-mail)
Phone #:
E-mail address: rkaiser@crawworld.com (see SSOW)

(8) **Data Package Options** (please circle if required)
Type I (Validation/non-CLP) MA MCP CT RCP
Type III (Reduced non-CLP)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13

EDD Required? Yes (No)

Site-specific QC (MS/MSD/Dup)? Yes (No)
(if yes, indicate QC sample and submit triplicate sample volume)

Relinquished by:	Date	Time	Received by:	Date	Time
	12/18/12	1200			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/20/12	1055

(9)

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 717-656-2300
The white copy should accompany samples to Lancaster Laboratories. The yellow copy should be retained by the client.

Issued by Dept. 40 Management
7044.01

Environmental Analysis Request/Chain of Custody

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Acct. # 11713 Group # 1358061 Sample # 6903384-93

2 OF 3

COC # 313114

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Conestoga-Rovers & Assoc. Acct. #:

Project Name/#: CVU #47H PWSID #:

Project Manager: Ryan Kalmer P.O.#:

Sampler: Joe Lewandowski Quote #:

Name of state where samples were collected: New Mexico

For Lab Use Only

FSC:

SCR#: 129055

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other ICE

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water	Sediment	Ground	Surface	Potable	NPDES	Other:	(4) Total # of Containers	(5) Analyses Requested: Preservation Codes: 0	0	Remarks
														Chlorides (300)	Moisture (SM10 3540G)	
SB-3-50-55'	12/17/12	1253	X		X								1	X	X	Hold
SB-3-55-60'	12/17/12	1256	X		X								1	X	X	Hold
~~SB-3-60-65'~~			X		X								1	X	X	Hold JRL
~~SB-3-65-70'~~			X		X								1	X	X	JRL
SB-4-0-5'		1326	X		X								1	X	X	Hold
SB-4-5-10'		1333	X		X								1	X	X	
SB-4-10-15'		1337	X		X								1	X	X	Hold
SB-4-15-20'		1339	X		X								1	X	X	
SB-4-20-25'		1348	X		X								1	X	X	Hold
SB-4-25-30'		1351	X		X								1	X	X	

JRL 12-17-12

(7) **Turnaround Time Requested** (TAT) (please circle): (Standard) Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: 1/4/13

Rush results requested by (please circle): Phone (E-mail)

Phone #:

E-mail address: rkalmer@crawworld.com (see SSDN)

(8) **Data Package Options** (please circle if required)

Type I (Validation/non-CLP) MA MCP CT RCP

Type III (Reduced non-CLP)

Type IV (CLP SOW)

Type VI (Raw Data Only)

TX TRRP-13

EDD Required? Yes (No)

Site-specific QC (MS/MSD/Dup)? Yes (No)

(if yes, indicate QC sample and submit triplicate sample volume)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/19/12	1200			
			[signature]	12/20/12	1055

(9)

Environmental Analysis Request/Chain of Custody

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Acct. # 11713 Group # 1358061 Sample # 6903384-93

3 OF 3

COC # 313116

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Conestoga-Rovers & Assoc. Acct. #:

Project Name/#: CVII # 47H PWSID #:

Project Manager: Ryan Kalner P.O.#:

Sampler: Joe Lewandowski Quote #:

Name of state where samples were collected: New Mexico

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other ICE

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Sediment	Water: Ground	Potable	Surface	NPDES	Other:	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: 0	0							Remarks
													Chlorides (300.0 SM20)	Moisture (2540G SM20)							
SB-4-30-35'	12-17-12	1355	X		X							1	X	X							Hold
SB-4-35-40'		1403	X		X							1	X	X							
SB-4-40-45'		1409	X		X							1	X	X							Hold
SB-4-45-50'		1413	X		X							1	X	X							
SB-4-50-55'		1415	X		X							1	X	X							Hold
SB-4-55-60'		1418	X		X							1	X	X							HOLD
~~SB-4-60-65'~~			X		X							1	X	X							Hold JBL 12-17-12
~~SB-4-65-70'~~			X		X							1	X	X							JBL 12-17-12
JBL 12-17-12																					

(7) **Turnaround Time Requested** (TAT) (please circle): (Standard) Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: 1/4/13

Rush results requested by (please circle): Phone (E-mail)

Phone #:

E-mail address: rkalner@erm.com (See SOW)

(8) **Data Package Options** (please circle if required)

Type I (Validation/non-CLP) MA MCP CT RCP

Type III (Reduced non-CLP)

Type IV (CLP SOW)

Type VI (Raw Data Only)

TX TRRP-13

EDD Required? Yes (No)

Site-specific QC (MS/MSD/Dup)? Yes (No)

(if yes, indicate QC sample and submit triplicate sample volume)

(9) Relinquished by:	Date	Time	Received by:	Date	Time
	12/19/12	1200			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/19/12	1055

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

Analytical Report 514050

for

GHD Services, INC- Midland

Project Manager: Jake Ferenz

CVU #47H

073821

02-SEP-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)

02-SEP-15

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

Reference: XENCO Report No(s): **514050**
CVU #47H
Project Address: NM

Jake 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) 514050. 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. 514050 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

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 514050

GHD Services, INC- Midland, Midland, TX

CVU #47H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS-081915-JF-SB-1 0'	S	08-19-15 12:55	- 0 ft	514050-001
SS-081915-JF-SB-1 5'	S	08-19-15 13:00	- 5 ft	514050-002
SS-081915-JF-SB-1 10'	S	08-19-15 13:05	- 10 ft	514050-003
SS-081915-JF-SB-1 15'	S	08-19-15 13:10	- 15 ft	514050-004
SS-081915-JF-SB-1 20'	S	08-19-15 13:15	- 20 ft	514050-005
SS-081915-JF-SB-1 30'	S	08-19-15 13:20	- 30 ft	514050-006
SS-081915-JF-SB-1 40'	S	08-19-15 13:25	- 40 ft	514050-007
SS-081915-JF-SB-1 50'	S	08-19-15 13:30	- 50 ft	514050-008
SS-081915-JF-SB-2 0'	S	08-19-15 13:45	- 0 ft	514050-009
SS-081915-JF-SB-2 5'	S	08-19-15 13:50	- 5 ft	514050-010
SS-081915-JF-SB-2 10'	S	08-19-15 13:55	- 10 ft	514050-011
SS-081915-JF-SB-2 15'	S	08-19-15 14:00	- 15 ft	514050-012
SS-081915-JF-SB-2 20'	S	08-19-15 14:05	- 20 ft	514050-013
SS-081915-JF-SB-2 30'	S	08-19-15 14:10	- 30 ft	514050-014
SS-081915-JF-SB-2 40'	S	08-19-15 14:15	- 40 ft	514050-015
SS-081915-JF-SB-2 50'	S	08-19-15 14:20	- 50 ft	514050-016
SS-081915-JF-SB-2 60'	S	08-19-15 14:25	- 60 ft	514050-017
SS-081915-JF-SB-2 80'	S	08-19-15 14:30	- 80 ft	514050-018

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 514050

GHD Services, INC- Midland, Midland, TX

Project Name: CVU #47H

Project Id: 073821
Contact: Jake Ferenz
Project Location: NM

Date Received in Lab: Fri Aug-21-15 04:15 pm
Report Date: 02-SEP-15
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	514050-001		514050-002		514050-003		514050-004		514050-005		514050-006	
	Field Id:	SS-081915-JF-SB-1 0'		SS-081915-JF-SB-1 5'		SS-081915-JF-SB-1 10'		SS-081915-JF-SB-1 15'		SS-081915-JF-SB-1 20'		SS-081915-JF-SB-1 30'	
	Depth:	0 ft		5 ft		10 ft		15 ft		20 ft		30 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-19-15 12:55		Aug-19-15 13:00		Aug-19-15 13:05		Aug-19-15 13:10		Aug-19-15 13:15		Aug-19-15 13:20	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30	
	Analyzed:	Sep-01-15 00:54		Sep-01-15 01:16		Sep-01-15 02:24		Sep-01-15 02:47		Sep-01-15 03:10		Sep-01-15 03:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		75.7	11.3	421	44.3	17.8	10.5	123	13.7	97.0	11.9	93.7	3.07
Percent Moisture	***Extracted:***												
	Analyzed:	Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		11.8	1.00	9.71	1.00	4.58	1.00	27.2	1.00	16.2	1.00	34.8	1.00

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 514050

GHD Services, INC- Midland, Midland, TX

Project Name: CVU #47H

Project Id: 073821
Contact: Jake Ferenz
Project Location: NM

Date Received in Lab: Fri Aug-21-15 04:15 pm
Report Date: 02-SEP-15
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	514050-007		514050-008		514050-009		514050-010		514050-011		514050-012	
	Field Id:	SS-081915-JF-SB-1 40'		SS-081915-JF-SB-1 50'		SS-081915-JF-SB-2 0'		SS-081915-JF-SB-2 5'		SS-081915-JF-SB-2 10'		SS-081915-JF-SB-2 15'	
	Depth:	40 ft		50 ft		0 ft		5 ft		10 ft		15 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-19-15 13:25		Aug-19-15 13:30		Aug-19-15 13:45		Aug-19-15 13:50		Aug-19-15 13:55		Aug-19-15 14:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30	
	Analyzed:	Sep-01-15 03:55		Sep-01-15 04:40		Sep-01-15 05:03		Sep-01-15 05:26		Sep-01-15 05:48		Sep-01-15 06:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		68.9	3.02	15.5	2.58	1540	106	1470	109	462	42.5	611	22.3
Percent Moisture	***Extracted:***												
	Analyzed:	Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		33.7	1.00	22.5	1.00	5.23	1.00	8.23	1.00	5.86	1.00	10.5	1.00

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 514050

GHD Services, INC- Midland, Midland, TX

Project Name: CVU #47H

Project Id: 073821
Contact: Jake Ferenz
Project Location: NM

Date Received in Lab: Fri Aug-21-15 04:15 pm
Report Date: 02-SEP-15
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	514050-013		514050-014		514050-015		514050-016		514050-017		514050-018	
	Field Id:	SS-081915-JF-SB-2 20'		SS-081915-JF-SB-2 30'		SS-081915-JF-SB-2 40'		SS-081915-JF-SB-2 50'		SS-081915-JF-SB-2 60'		SS-081915-JF-SB-2 80'	
	Depth:	20 ft		30 ft		40 ft		50 ft		60 ft		80 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-19-15 14:05		Aug-19-15 14:10		Aug-19-15 14:15		Aug-19-15 14:20		Aug-19-15 14:25		Aug-19-15 14:30	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 14:30		Aug-31-15 16:00		Aug-31-15 16:00	
	Analyzed:	Sep-01-15 07:19		Sep-01-15 07:42		Sep-01-15 08:04		Sep-01-15 12:49		Sep-01-15 14:19		Sep-01-15 15:50	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		680	43.0	306	21.4	539	42.3	554	41.8	1090	41.7	101	2.05
Percent Moisture	***Extracted:***												
	Analyzed:	Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30		Aug-31-15 17:30	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		7.07	1.00	6.59	1.00	5.44	1.00	4.36	1.00	4.11	1.00	2.59	1.00

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

BS / BSD Recoveries

Project Name: CVU #47H

Work Order #: 514050 **Project ID:** 073821

Analyst: JUM **Date Prepared:** 08/31/2015 **Date Analyzed:** 08/31/2015

Lab Batch ID: 975899 **Sample:** 697473-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<2.00	50.0	49.5	99	50.0	49.6	99	0	90-110	20	

Analyst: JUM **Date Prepared:** 08/31/2015 **Date Analyzed:** 09/01/2015

Lab Batch ID: 975962 **Sample:** 697518-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<2.00	50.0	49.4	99	50.0	49.6	99	0	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: CVU #47H

Work Order #: 514050

Lab Batch #: 975899 **Project ID:** 073821

Date Analyzed: 08/31/2015 **Date Prepared:** 08/31/2015 **Analyst:** JUM

QC- Sample ID: 514049-034 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	5.04	53.7	58.4	99	80-120	

Lab Batch #: 975899

Date Analyzed: 09/01/2015 **Date Prepared:** 08/31/2015 **Analyst:** JUM

QC- Sample ID: 514050-007 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	68.9	75.4	143	98	80-120	

Lab Batch #: 975962

Date Analyzed: 09/01/2015 **Date Prepared:** 08/31/2015 **Analyst:** JUM

QC- Sample ID: 514050-017 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	1090	1040	2210	108	80-120	

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

BRL - Below Reporting Limit

Sample Duplicate Recovery

Project Name: CVU #47H

Work Order #: 514050

Lab Batch #: 975936 **Project ID:** 073821
Date Analyzed: 08/31/2015 17:30 **Date Prepared:** 08/31/2015 **Analyst:** WRU
QC- Sample ID: 514049-021 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	5.83	5.94	2	20	

Lab Batch #: 975936
Date Analyzed: 08/31/2015 17:30 **Date Prepared:** 08/31/2015 **Analyst:** WRU
QC- Sample ID: 514049-031 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	7.19	7.18	0	20	

Lab Batch #: 975939
Date Analyzed: 08/31/2015 17:30 **Date Prepared:** 08/31/2015 **Analyst:** WRU
QC- Sample ID: 514049-037 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	1.04	<1.00	NC	20	U

Lab Batch #: 975939
Date Analyzed: 08/31/2015 17:30 **Date Prepared:** 08/31/2015 **Analyst:** WRU
QC- Sample ID: 514050-014 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	6.59	6.60	0	20	

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

CHAIN OF CUSTODY

Page 1 Of 2

XENCO LABORATORIES

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Dallas, Texas (214-902-0300)
Service Center - San Antonio, Texas (210-509-3334)
www.xenco.com

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

Xenco Quote #:
Xenco Job #: 514050

Client / Reporting Information

Company Name / Branch: GHD Services, Inc - Dallas
Company Address: 1955 Wittington Place, Suite 500, Dallas, TX 75234
Email: Christopher.Knight@GHD.com; Jake.Ferenz@GHD.com
Phone No:
Project Contact: Jake Ferenz
Samplers's Name: John Fergerson

Project Information

Project Name/Number: ~~CVU #47H~~ / 073821/CEMC
Project Location: CVU #47H
Invoice To:
PO Number:

Analytical Information

Chlorides

Matrix Codes

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

WW= Waste Water

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chlorides	Field Comments
1	SS-081915-JF-SB-1	0'	8/19/15	1255	S	1								X	✓	
2	SS-081915-JF-SB-1	5'	8/19/15	1300	S	1								X	✓	
3	SS-081915-JF-SB-1	10'	8/19/15	1305	S	1								X	✓	
4	SS-081915-JF-SB-1	15'	8/19/15	1310	S	1								X	✓	
5	SS-081915-JF-SB-1	20'	8/19/15	1315	S	1								X	✓	
6	SS-081915-JF-SB-1	30'	8/19/15	1320	S	1								X	✓	
7	SS-081915-JF-SB-1	40'	8/19/15	1325	S	1								X	✓	
8	SS-081915-JF-SB-1	50'	8/19/15	1330	S	1								X	✓	
9	SS-081915-JF-SB-2	0'	8/19/15	1345	S	1								X	✓	
10	SS-081915-JF-SB-2	5'	8/19/15	1350	S	1								X	✓	

Turnaround Time (Business days)

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

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

Data Deliverable Information

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

Notes:

See SSOW

FED-EX / UPS: Tracking #

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

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Jennifer Reed	8/21/15 1615	1	2	8/21/15 1615	2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: X — Cooler Temp. 3.4 — Thermo. Corr. Factor
			5			

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

CHAIN OF CUSTODY

Page 2 Of 2

XENCO LABORATORIES

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

Xenco Quote #:
Xenco Job #: 5K1050

Client / Reporting Information

Company Name / Branch: GHD Services Inc - Dallas
Company Address: 1755 Wittington Place, Suite 500 Dallas, TX 75234
Email: Christoper.Knight@GHD.com; Jake.Ferenz@GHD.com
Phone No:
Project Contact: Jake Ferenz
Samplers's Name: John Fergerson

Project Information

Project Name/Number: CEMCI 073821
Project Location: CVU #47H
Invoice To:
PO Number:

Analytical Information

Chlorides

Matrix Codes

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

WW= Waste Water

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chlorides	Field Comments
1	SS-081915-JF-SB-2	10'	8/19/15	1355	S	1								X	✓	
2	SS-081915-JF-SB-2	15'	8/19/15	1400	S	1								X	✓	
3	SS-081915-JF-SB-2	20'	8/19/15	1405	S	1								X	✓	
4	SS-081915-JF-SB-2	30'	8/19/15	1410	S	1								X	✓	
5	SS-081915-JF-SB-2	40'	8/19/15	1415	S	1								X	✓	
6	SS-081915-JF-SB-2	50'	8/19/15	1420	S	1								X	✓	
7	SS-081915-JF-SB-2	60'	8/19/15	1425	S	1								X	✓	
8	SS-081915-JF-SB-2	80'	8/19/15	1430	S	1								X	✓	
9																
10																

Turnaround Time (Business days)

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

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- [ ] TRRP Checklist

Notes: See SSOW

FED-EX / UPS: Tracking #

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

Relinquished by Sampler: 1	Date Time: 8/21/15 1615	Received By: 1	Relinquished By: 2	Date Time: 8/21/15 1615	Received By: 2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice: X; Cooler Temp.: 3.4; 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 affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

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

Work Order #: 514050

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

Temperature Measuring device used :

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.4
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6 *Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Sample instructions complete on Chain of Custody?	**Yes**
#9 Any missing/extra samples?	**No**
#10 Chain of Custody signed when relinquished/ received?	**Yes**
#11 Chain of Custody agrees with sample label(s)?	**Yes**
#12 Container label(s) legible and intact?	**Yes**
#13 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#14 Samples in proper container/ bottle?	**Yes**
#15 Samples properly preserved?	**Yes**
#16 Sample container(s) intact?	**Yes**
#17 Sufficient sample amount for indicated test(s)?	**Yes**
#18 All samples received within hold time?	**Yes**
#19 Subcontract of sample(s)?	**No**
#20 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

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

Analyst:

PH Device/Lot#:

Checklist completed by: Kelsey Brooks Date: 08/23/2015

Checklist reviewed by: Kelsey Brooks Date: 08/25/2015