Jason Michelson
Project Manager

Chevron Environmental Management Company
1500 Louisiana Street, #38116
Houston, Texas 77002
Work: 832-854-5601
Cell: 281-660-8564
jmichelson@chevron.com

August 14, 2020

New Mexico Oil Conservation Division, District 1
1625 N. French Drive
Hobbs, NM 88240

Re: Central Vacuum Unit No. 199 Well Site
Case No. 1RP-3808
2019 Work Plan
Lea County, New Mexico

Dear whom it concerns,

Please find enclosed for your records copies of the following report:

- Central Vacuum Unit No. 199 Well Site 1RP-3808 2018 Site Assessment Report

The submittal was originally prepared and submitted by GHD Services, Inc. (GHD) and is being resubmitted by Arcadis U.S., Inc. on behalf of Chevron Environmental Management Company (CEMC) per request of the New Mexico Oil Conservation Division.

Please do not hesitate to call Scott Foord with Arcadis U.S., Inc., the current consultant, at 713-953-4853 or myself at 832-854-5601, should you have any questions.

Sincerely,

Jason Michelson

- Encl. Central Vacuum Unit No. 199 Well Site 1RP-3808 2018 Site Assessment Report

C.C. Amy Barnhill, Chevron/MCBU

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nJXK1523037497
District RP	1RP-3808
Facility ID	30-025-32804
Application ID	pJXK1523037598

Release Notification

Responsible Party

Responsible Party: Chevron USA Inc.	OGRID
Contact Name: Jason Michelson	Contact Telephone: 832-854-5601
Contact email: jmichelson@chevron.com	Incident # *(assigned by OCD)*: nJXK1523037497
Contact mailing address: 1500 Louisiana Street Houston, Texas 77002	

Location of Release Source

Latitude 32.780803 Longitude -103.497963
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Central Vacuum Unit 199	Site Type: Well
Date Release Discovered: 8/10/2015	API# *(if applicable)*: 30-025-32804

Unit Letter	Section	Township	Range	County
E	6	18S	35E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls): 12.7	Volume Recovered (bbls): 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release: Buried fiberglass line failure caused 12.7 bbls of produced water to spill to the ground.		

State of New Mexico
Oil Conservation Division

Incident ID	nJXK1523037497
District RP	1RP-3808
Facility ID	30-025-32804
Application ID	pJXK1523037598

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release? **Release was less than 25 barrels.**
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? **See Initial C-141 Form submitted on 8/18/2015**	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	120 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

State of New Mexico
Oil Conservation Division

Incident ID	nJXK1523037497
District RP	1RP-3808
Facility ID	30-025-32804
Application ID	pJXK1523037598

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs – **MW-1 boring log attached**
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: _____Jason Michelson_____ Title: _____Project Manager_____

Signature:_____ Date: _8/14/2020_____

email: ___jmichelson@chevron.com_____ Telephone: _____832-854-5601_____

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nJXK1523037497
District RP	1RP-3808
Facility ID	30-025-32804
Application ID	pJXK1523037598

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

☐ Detailed description of proposed remediation technique
☐ Scaled sitemap with GPS coordinates showing delineation points
☐ Estimated volume of material to be remediated
☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction. **Numerous below and above ground utilities are currently active across the Site restricting access to the release area.**

☐ Extents of contamination must be fully delineated. **Additional delineation is not possible at this time due to numerous above and below ground active utilities.**

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater. **Depth to groundwater has been confirmed greater than 100 feet bgs, and groundwater samples have confirmed no impact to groundwater.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: _____Jason Michelson _____ Title: _____Project Manager_____

Signature: _____ Date: _8/14/2020_____

email: _____jmichelson@chevron.com_____ Telephone: ___832-854-5601_____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☒ Deferral Approved (see below)

Signature: Bradford Billings Date: 09/21/2020

Agree no pressing danger and bottom of contamination identified for the most part

Photographs to support claims of lines in the way and scaled map with utility locations identified will be needed.

2018 Site Assessment Report

Central Vacuum Unit 199 (RP-3808)
Lea County, New Mexico

Chevron Environmental
Management Company

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1. Introduction

GHD is pleased to present this Site Assessment Report to Chevron Environmental Management Company (CEMC) for the Central Vacuum Unit 199 (hereafter referred to as the "Site"). The Site is located in Section 6, Township 18 South, Range 35 East within the Vacuum Grayburg San Andres Unit (VGSAU) Oil Field in Lea County, New Mexico (refer to Figure 1 and Figure 2). Remediation Permit RP-3808 was assigned to the Site by the New Mexico Oil Conservation Division (NMOCD).

2. Regulatory Criteria

2.1 Soil

Historical subsurface investigation activities were completed in accordance with the Guidelines for Remediation of Leaks, Spills, and Releases Rule 19.15.29 New Mexico Administrative Code (NMAC) from the NMOCD dated August 13, 1993. The former site-specific Recommended Remediation Action Levels (RRALs) previously applied to this location by the NMOCD were 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and xylenes (BTEX), 100 mg/kg for total petroleum hydrocarbons (TPH), and 600 mg/kg for chloride.

Rule 19.15.29 was revised and reissued on August 14, 2018. The following criteria from Table 1 (below) within NMAC 19.15.29.12 was utilized to determine site-specific screening limits.

Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/l TDS	Constituent	Limit*
>100 feet	Chloride**	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

* Numerical limits or natural background level, whichever is greater.

** This applies to release of produced water or other fluids which may contain chloride.

Localized depth to groundwater was confirmed to be approximately 120 feet (bgs) in 2018 based on the information from monitoring well MW-1. Additionally, information available from various sources including the New Mexico Office of the State Engineer (NMOSE) Point of Diversion (POD) mapping database, Petroleum Recovery Research Center (PRRC) Mapping Portal, currently managed groundwater site(s) data by GHD, and the United States Geological Survey (USGS) Current Water Database for the Nation, concludes:

a) the depth to groundwater at the Site is greater than 100-feet bgs;

b) the site is not within 300 feet of any continuously flowing watercourse;

c) the site is not within 200 feet of any lakebed, sinkhole or playa lake;

d) the site is not within 300 feet of an occupied permanent residence, school, etc.;

e) the site is not within 500 feet of a spring or private, domestic fresh water well;

f) the site is not within 1,000 feet of any fresh water well or spring;

g) the site is not within incorporated municipal boundaries or within a defined municipal fresh water well field;

h) the site is not within 300 feet of a wetland;

i) the site is not within an area overlying a subsurface mine;

j) the site is not within an unstable area; and

k) the site is not within a 100-year floodplain.

Consequently, the anticipated site-specific screening limits to be applied to this location by the NMOCD based on the revised Rule are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 2,500 mg/kg for total TPH, and 20,000 mg/kg for chloride.

Per 19.15.29.13, Restoration, Reclamation, and Re-vegetation, the impacted area must be remediated a minimum of 4-feet bgs with non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg. Soil cover must consist of topsoil at a thickness comparable to background topsoil thicknesses, or one foot of suitable earthen material capable of establishing and maintaining vegetation at the site. Reclamation is considered complete when all disturbed areas have established vegetative cover with a life-form ratio of plus or minus 50 percent of pre-remedial levels, and plant cover of a minimum of 70 percent of previous levels, excluding noxious weeds.

2.2 Groundwater

The NMOCD provides guidance for remediation of contaminants of oil field wastes or products in Guidelines for Remediation of Leaks, Spills, and Releases (August 13, 1993). The guidance requires remediation of groundwater to the human health standards of the New Mexico Water Quality Control Commission (NMWQCC) set forth in New Mexico Administrative Code 20.6.2.3103. Standards for chloride and total dissolved solids (TDS) are listed below.

Analyte	NMWQCC Groundwater Standard (mg/L)
Chloride	250
TDS	1000

NMWQCC groundwater standards do not include TPH.

3. Project Information and Background

The release site is situated proximate to multiple produced water and oil gathering lines that converge at a surface manifold location. According to the NMOCD Release Notification and Corrective Action Form C-141 submitted to the NMOCD by Chevron, the release occurred on August 10, 2015 and was immediately reported to the Hobbs District 1 OCD office. The volume of

the spill was reported as 12.7 barrels of produced water of which 0 barrels were recovered. A failure of a buried fiberglass water line was listed as the cause of the release.

Soil analytical data collected from the Site by others was provided to GHD in April 2016 by CEMC. Four soil samples were collected and analyzed for BTEX by EPA Method 8021, gasoline and diesel range organics (GRO/DRO) and TPH by United States Environmental Protection Agency (EPA) Method 8015, and chloride by EPA Method 300. Soil sample locations are depicted in Figure 3. All BTEX sample concentrations were below laboratory detection limits, and all but one sample exhibited TPH and chloride concentrations below historical NMOCD screening levels.

In June and August 2017, GHD completed a two-phase geophysical investigation at the Site. The purpose of the investigation was to delineate areas of elevated conductivity in order to map the extent of suspected chloride impacts to soil at the Site. The first phase of the investigation consisted of an electromagnetic (EM) survey to delineate the footprint of the suspected impacts. Based on the EM survey results, an electrical resistivity (ER) survey was completed to determine the vertical distribution of the suspected impacts. Results of the geophysical surveys indicate potential widespread chloride impact to the Site.

In September 2018, GHD completed an additional soil and groundwater assessment at the Site. The purpose of this investigation was to further delineate the contamination within the soil as well as any impact (if any) to groundwater. One monitoring well (MW-1) was installed to 130 feet bgs and soil samples were collected at 4 feet bgs, 10 feet bgs, and then at 10 foot intervals to a depth up of 90 feet bgs. The results of this investigation are presented in this report.

Access to the Site is restricted due to numerous underground utilities at the Site.

4. 2018 Drilling and Sampling

4.1 Monitoring Well Installation

One monitoring well was installed at the Site to further assess current chloride impact to soil and groundwater at the Site. Prior to mobilizing drilling equipment to the Site, the monitoring well location was pre-marked and a New Mexico 811 One-Call utility locate was completed at least 48 hours prior to start of work. A secondary utility check was completed that included Ground Penetrating Radar (GPR) services by High Mesa of Albuquerque, New Mexico.

On September 13, 2018, GHD and GHD subcontractor Harrison Cooper, Inc. (HCI), a New Mexico licensed drilling company, mobilized to the Site to begin monitoring well installation for MW-1. The monitoring well was pre-cleared with an air knife to a depth of 5 feet bgs or until refusal. The remainder of the boring was advanced using a combination of air and mud rotary drill methods. A total depth of 130 feet bgs was reached in MW-1.

During drilling, a GHD geologist observed, visually inspected, and logged soil cuttings at 10-foot intervals and recorded subsurface lithology in accordance with the Unified Soil Classification System in field books. Boring logs prepared from the field information can be found in Appendix A.

The soil types observed in soil samples collected during the drilling program consisted of a mixture of caliche and silty sand. Chloride screening was accomplished in the field by mixing soil samples with distilled water, then testing the rinsate using Hach chloride test strips.

Soils samples were collected from MW-1 at 4, 10, 15, 20, 30, 40, 50, 60, 70, 80, and 90 feet bgs for laboratory analysis. Soil samples for laboratory analysis were collected in laboratory prepared containers, packed on ice, and sent under chain of custody documentation to Xenco Laboratories (Xenco) in Midland, Texas for chloride analysis by EPA Method 300.

General well specifications for MW-1 include 4-inch diameter PVC casing with PVC screen from approximately 95 to 130 feet bgs. A gravel pack was installed in the annulus of the borehole from bottom up to 2-feet above the screen depth. A 2 to 3-feet bentonite seal was installed above the gravel pack in the well. The well was grouted with a bentonite/cement slurry from the top of the bentonite seal to the ground surface. The well was then finished at the surface with stickup well protectors set in an approximate 4 foot by 4 foot concrete pad. The total depth and construction of the well was based on the professional judgment of the GHD geologist in coordination with CEMC personnel.

Preliminary gauging data indicated that groundwater was present at approximately 123 feet below the top of casing. The well was developed by removal of sufficient volumes of water to clear the well casing and annulus of sediment. Turbid water was removed with a 3-inch diameter bailer. Following bailing, well development was completed by pumping at 9 gallons per minute with a submersible pump. Approximately 300 gallons of water were removed during well development.

The well construction diagram and the State Well Report are provided in Appendix A.

4.2 Soil Sampling Analytical Results

A soil analytical summary of results is presented in Table 1. A Site Details and Analytical Results Map is presented as Figure 4.

- Chloride concentrations above the revised Rule 19.15.29 screening limit of 20,000 mg/kg were not detected soil samples collected from the soil boring installed in September 2018 (MW-1).
- Concentrations exceeding the revised screening limit for TPH were reported in one of the soil samples collected in 2016 (CVU 199 #1) at four feet bgs. Chloride concentrations above the restoration requirements for the upper four feet bgs were also reported. Access within this area is limited due to numerous underground utilities.

The 2018 soil laboratory analytical report is included in Appendix B.

4.3 Groundwater Analytical Results

Chloride was reported at a concentration of 151 milligrams per liter (mg/L) from the groundwater sample collected from MW-1, which is below the 250 mg/L standard. TDS was reported at a concentration of 772 mg/L from the sample collected from MW-1, which is below the 1,000 mg/L standard.

Groundwater analytical results for chloride and TDS are summarized in Table 2 in reference to NMWQCC standards. The laboratory analytical report is provided in Appendix B.

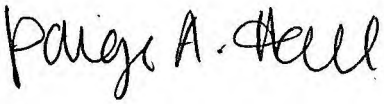
5. Conclusions and Recommendations

Given the significant amount of buried and surface lines on and surrounding the Site, any excavation activities in these areas will be extremely dangerous and are not advisable. GHD recommends that any future remediation at the Site be deferred until the lines are no longer in service and have been plugged and abandoned. In addition, based on the groundwater analytical data, it appears that groundwater has not been impacted at the site. Therefore GHD recommends MW-1 be plugged and abandoned.

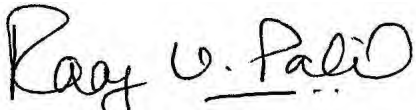
GHD appreciates the opportunity to provide these services. Should you have any questions, please feel free to contact the undersigned.

All of Which is Respectfully Submitted,

GHD

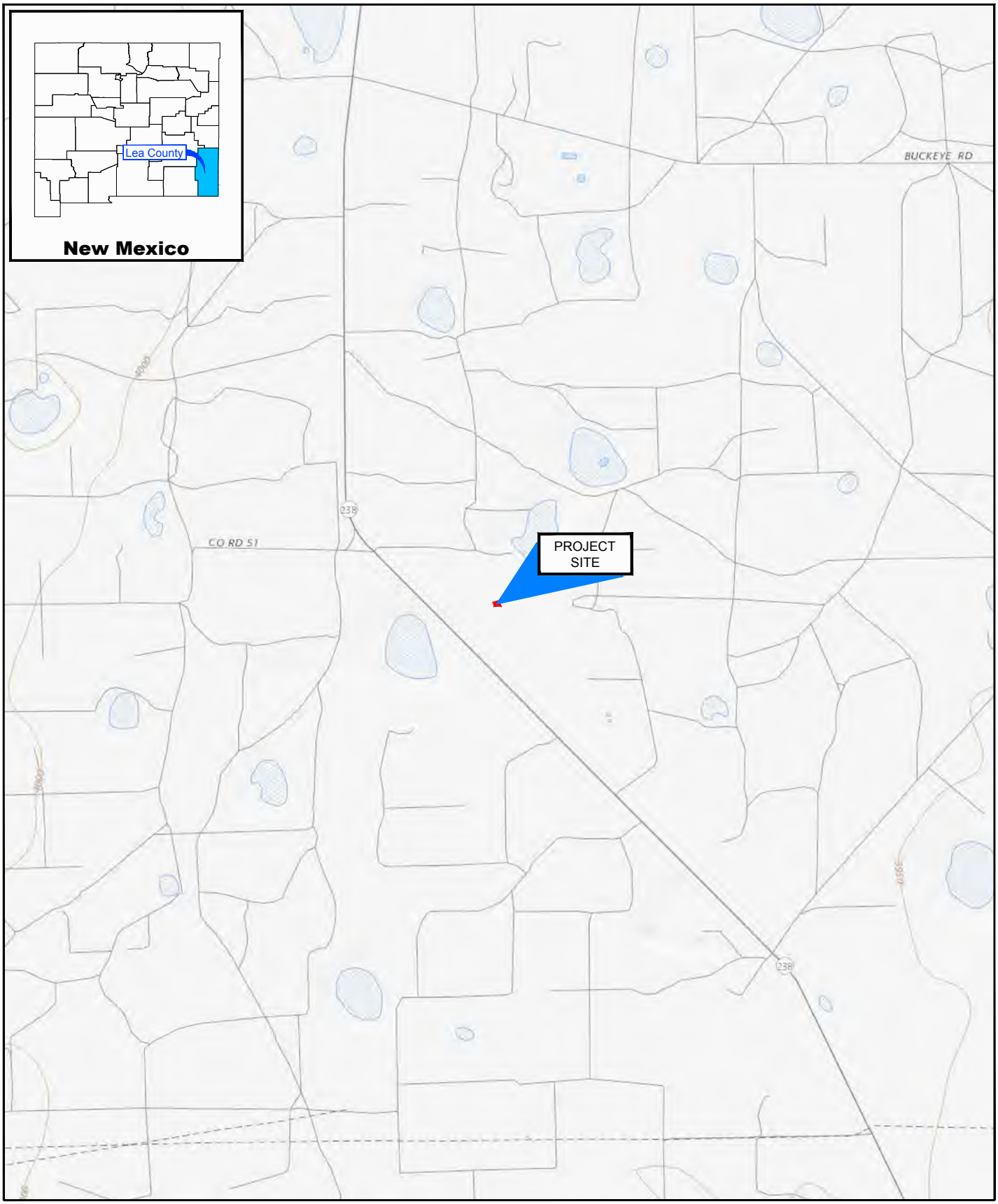


Paige Hall
Project Manager



Raaj U. Patel, P.G.
Senior Project Manager

Figures



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

Lat/Long: 32.780803° North, 103.497963° West

0 1000 2000ft

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

CEMC
BUCKEYE FMT, LEA COUNTY, NEW MEXICO
CVU 199 PRODUCED WATER RELEASE ASSESSMENT

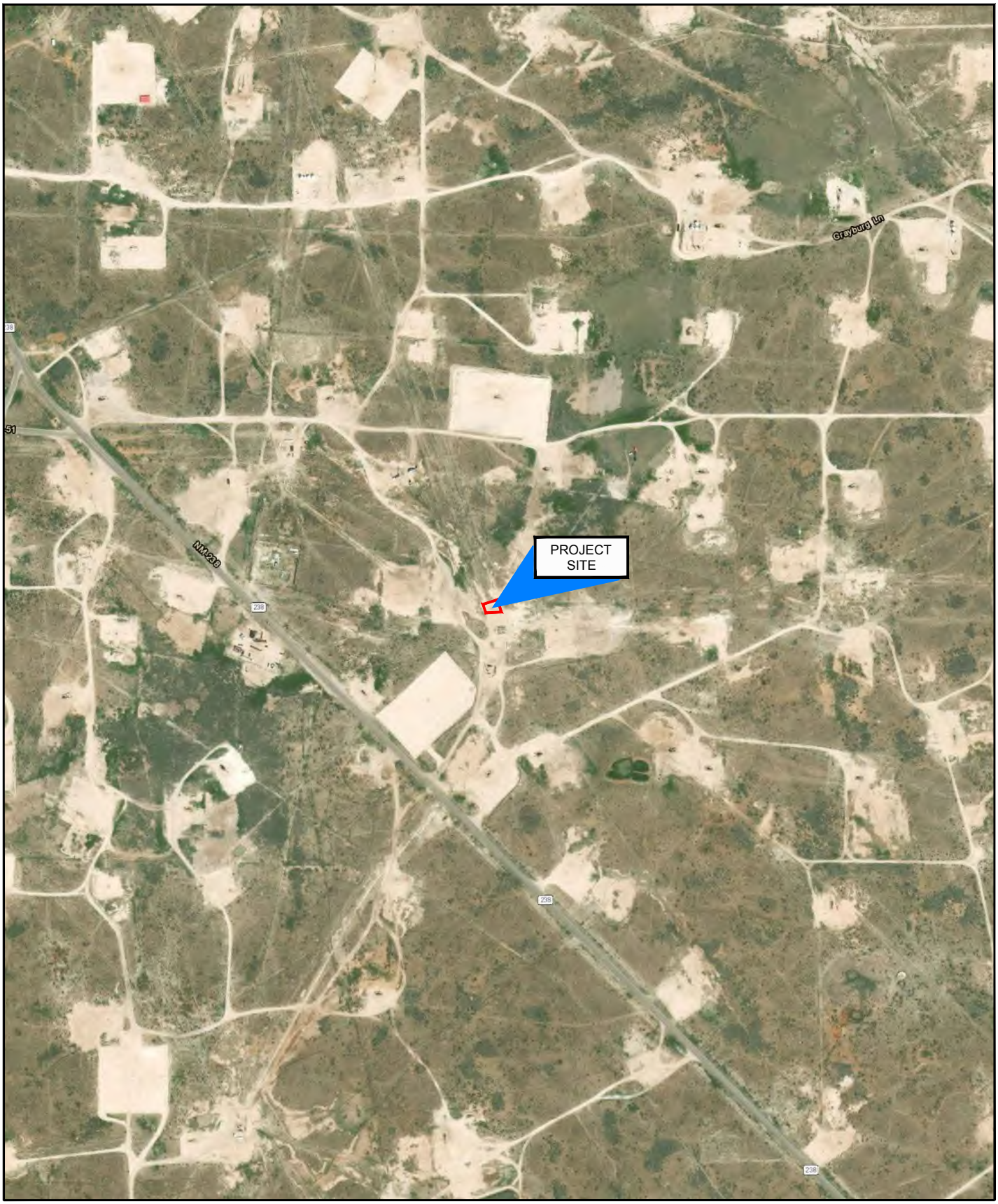
11121242-2018

Dec 4, 2018

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1112----\11121242-CEMC-Buckeye_FMT\11121242-2018\11121242-2018(002)\11121242-2018(002)GN-DL001.dwg



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

Lat/Long: 32.780803° North, 103.497963° West

0 200 600ft

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

CEMC
BUCKEYE FMT, LEA COUNTY, NEW MEXICO
CVU 199 PRODUCED WATER RELEASE ASSESSMENT

11121242-2018

Dec 4, 2018

AERIAL SITE MAP

FIGURE 2

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1112----\11121242-CEMC-Buckeye_FMT\11121242-2018\11121242-2018(002)\11121242-2018(002)GN-DL001.dwg

Source: Microsoft Product Screen shot(s) Reprinted with permission from Microsoft Corporation

Lat/Long: 32.780803° North, 103.497963° West

0 20 50ft

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

CEMC
BUCKEYE FMT, LEA COUNTY, NEW MEXICO
CVU 199 PRODUCED WATER RELEASE ASSESSMENT

11121242-2018

Dec 5, 2018

SITE DETAILS MAP

FIGURE 3

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1112----\11121242-CEMC-Buckeye_FMT\11121242-2018\11121242-2018(002)\11121242-2018(002)GN-DL001.dwg

Source: Microsoft Product Screen shot(s) Reprinted with permission from Microsoft Corporation

Lat/Long: 32.780803° North, 103.497963° West

0 20 50ft

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

GHD

CEMC
BUCKEYE FMT, LEA COUNTY, NEW MEXICO
CVU 199 PRODUCED WATER RELEASE ASSESSMENT

11121242-2018
Feb 7, 2019

SITE DETAILS AND ANALYTICAL RESULTS MAP

FIGURE 4

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Tables

Table 1

Summary of Soil Analytical Results
Chevron Environmental Management Company
Central Vacuum Unit No. 199
Lea County, New Mexico

Sample ID	Depth (feet)	Date	Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Total Xylenes mg/kg	Total BTEX mg/kg	TPH DRO mg/kg	TPH GRO mg/kg	TPH GRO/DRO mg/kg	Chlorides mg/kg
NMOCD SCREENING STANDARDS			**10**	**---**	**---**	**---**	**50**	**---**	**---**	**1000**	**20,000**
Restoration Requirements within the Top 4 feet bgs											**600***
CVU 199 #1	4	2/8/16	<0.050	<0.050	<0.050	<0.150	<0.300	**5610**	<50.0	**5610**	**2,040.0**
CVU 199 #2	4	2/8/16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	**128.0**
CVU 199 #3	4	2/8/16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	**64.0**
CVU 199 #4	4	2/8/16	<0.050	<0.050	<0.050	<0.150	<0.300	**17**	<10.0	**17**	**192.0**
MW-1	4	9/13/18	--	--	--	--	--	--	--	--	**294.0**
	10	9/13/18	--	--	--	--	--	--	--	--	**1,870.0**
	20	9/13/18	--	--	--	--	--	--	--	--	**1,940.0**
	30	9/13/18	--	--	--	--	--	--	--	--	**680.0**
	40	9/13/18	--	--	--	--	--	--	--	--	**115.0**
	50	9/13/18	--	--	--	--	--	--	--	--	**39.7**
	60	9/13/18	--	--	--	--	--	--	--	--	**45.0**
	70	9/13/18	--	--	--	--	--	--	--	--	**14.8**
	80	9/13/18	--	--	--	--	--	--	--	--	**31.6**
	90	9/13/18	--	--	--	--	--	--	--	--	**21.9**

Notes:

- Bold concentrations are above lab reporting limits.
- Highlighted cells indicate concentrations exceeding regulatory limits
- "--" indicates parameter not analyzed or not applicable.
- BTEX analyses by EPA Method 8021B.
- TPH analyzed by EPA Method SW8015B Mod.
- Chloride analyzed by EPA Method 300.

Summary of Groundwater Analytical Results
Central Vacuum Unit No. 199
Lea County, New Mexico

Well ID	*Date*	*GRO*	*DRO*	*MRO*	*Total TPH*	*Chloride*	*TDS*
NMWQCC Standards		***--***	***--***	***--***	***2500 mg/L***	***250 mg/L***	***1000 mg/L***
MW-1	10/31/18	<1.50	<1.50	<1.50	<1.50	**151**	**772**

NOTES:

NMWQCC - New Mexico Water Quality Control Commission

'mg/L' indicates milligrams per liter

NA' indicates analyte not analyzed

Yellow-shaded cells indicate that concentration exceeds NMWQCC standard.

- Chloride analyzed by EPA Method 300.1

-Bold indicates a detection

Appendices

Appendix A
Monitoring Well Log and State Well Report (MW-1)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: CVU 199
PROJECT NUMBER: 11121242
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: MW-1
DATE COMPLETED: 13 September 2018
DRILLING METHOD: Hydro Excavation, Air Rotary, and Mud Rotary
FIELD PERSONNEL: Sean Parry

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE DEPTH (ft)	INTERVAL	REC (ft)	PP (tsf)	Chloride (mg/kg)
0	CALICHE: brownish-grey, dry							
5				4	G	1.0		294
10	SILTY SAND (SM): yellowish-orange, dry, contains caliche	10.00		10	G	1.0		1870
15								
20	- yellowish orange, dry			20	G	1.0		1940
25								
30	- light yellowish orange, dry			30	G	1.0		680
35								
40	- yellowish orange, moist			40	G	1.0		115
45								
50			Cement Bentonite Mix; 4-inch SCH 40 PVC riser	50	G	1.0		39.7
55								
60				60	G	1.0		45
65								
70				70	G	1.0		14.8
75								
80	- light brown, moist			80	G	1.0		31.6
85								
90				90	G	1.0		21.9
95								

NOTES: Stratigraphy descriptions are based on drill cuttings.

LABORATORY ANALYSIS (G)

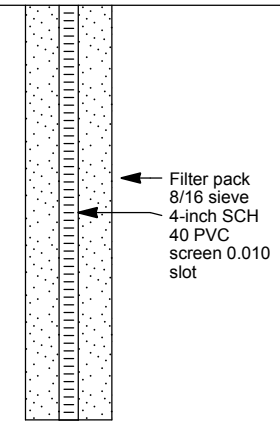
OVERBURDEN LOG 11121242 CVU 199.GPJ CRA_CORP.GDT 29/11/18

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: CVU 199
PROJECT NUMBER: 11121242
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: MW-1
DATE COMPLETED: 13 September 2018
DRILLING METHOD: Hydro Excavation, Air Rotary, and Mud Rotary
FIELD PERSONNEL: Sean Parry

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE				
				DEPTH (ft)	INTERVAL	REC (ft)	PP (tsf)	Chloride (mg/kg)
105	- light brown, wet							
110								
115								
120								
125								
130	END OF BOREHOLE @ 130.0ft BGS	130.00						
135								
140								
145								
150								
155								
160								
165								
170								
175								
180								
185								
190								
195								



WELL DETAILS
Screened interval:
100.00 to 130.00ft BGS
Length: 30ft
Slot Size: 0.01
Material: PVC
Seal:
0.00 to 95.00ft BGS
Material: Cement Bentonite Mix
Sand Pack:
95.00 to 130.00ft BGS
Material: 8/16 sieve sand

BOREHOLE DIAMETER 8 Inch

NOTES: Stratigraphy descriptions are based on drill cuttings.

LABORATORY ANALYSIS

OVERBURDEN LOG 11121242 CVU 199.GPJ CRA_CORP.GDT 29/11/18

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
L 14517 POD 1 (MW-1)		

WELL OWNER NAME(S)	PHONE (OPTIONAL)
CHEVRON EMC	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
1400 SMITH STREET	HOUSTON	TX	77002

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	46	50.682	N
	LONGITUDE	103	29	52.8396	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND

* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHJIP, RANGE) WHERE AVAILABLE

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1731	KENNY COOPER	HARRISON & COOPER, INC,

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
09/13/2018	09/13/2018	130'	130'	

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☑ SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT)

DRILLING FLUID: ☐ AIR ☑ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	100	8	RISER	FJ	4"	SCH.40	
100	130	8	SCREEN	FJ	4"	SCH.40	.010

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	2	8	CONCRETE	1	POURED
2	95	8	CEMENT/BENTONITE	2	TREMMIE
95	130	8	SAND - 8/16	2	TREMMIE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	10	10	CALICHE - BROWNISH GREY	Y N	
10	20	10	SILTY SAND - YELLOWISH-ORANGE, CONTAINS CALICHE	Y N	
20	30	10	SILTY SAND - YELLOWISH ORANGE	Y N	
30	40	10	SILTY SAND - LIGHT YELLOWISH ORANGE	Y N	
40	80	40	SILTY SAND - YELLOWISH ORANGE	Y N	
80	100	20	SILTY SAND - LIGHT BROWN	Y N	
100	130	30	SILTY SAND - LIGHT BROWN, WET	Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

KENNY COOPER — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

11/14/2018 — DATE

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/2017)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 2 OF 2

Appendix B
Soil and Groundwater Laboratory Analytical Reports

Certificate of Analysis Summary 599296

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC CVU199

Project Id: 11121242/2018
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Mon Sep-17-18 01:19 pm
Report Date: 25-SEP-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	599296-001		599296-002		599296-003		599296-004		599296-005		599296-006	
	Field Id:	MW1-4-130918		MW1-10-130918		MW1-20-130918		MW1-30-130918		MW1-40-130918		MW1-50-130918	
	Depth:	4-		10-		20-		30-		40-		50-	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-13-18 08:25		Sep-13-18 08:30		Sep-13-18 08:35		Sep-13-18 08:40		Sep-13-18 08:45		Sep-13-18 08:50	
Chloride by EPA 300	***Extracted:***	Sep-21-18 12:45		Sep-21-18 12:45		Sep-21-18 12:45		Sep-21-18 12:45		Sep-21-18 12:45		Sep-21-18 12:45	
	Analyzed:	Sep-21-18 21:09		Sep-21-18 21:26		Sep-21-18 21:32		Sep-21-18 21:38		Sep-21-18 21:43		Sep-21-18 21:49	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		294	5.53	1870	27.9	1940	26.9	680	5.36	115	5.31	39.7	5.24
Percent Moisture	***Extracted:***												
	Analyzed:	Sep-19-18 10:45		Sep-19-18 10:45		Sep-19-18 10:45		Sep-19-18 10:45		Sep-19-18 10:45		Sep-19-18 10:45	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		10.5		10.7		6.69		6.57		5.85		5.20	

Debbie Simmons
Project Manager

Certificate of Analysis Summary 599296

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC CVU199

Project Id: 11121242/2018
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Mon Sep-17-18 01:19 pm
Report Date: 25-SEP-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	599296-007		599296-008		599296-009		599296-010					
	Field Id:	MW1-60-130918		MW1-70-130918		MW1-80-130918		MW1-90-130918					
	Depth:	60-		70-		80-		90-					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Sep-13-18 08:55		Sep-13-18 09:00		Sep-13-18 09:05		Sep-13-18 09:10					
Chloride by EPA 300	***Extracted:***	Sep-21-18 12:45		Sep-21-18 12:45		Sep-21-18 15:00		Sep-21-18 15:00					
	Analyzed:	Sep-21-18 21:55		Sep-21-18 22:00		Sep-21-18 23:37		Sep-21-18 23:54					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		45.0	5.31	14.8	5.14	31.6	5.50	21.9	5.17				
Percent Moisture	***Extracted:***												
	Analyzed:	Sep-19-18 10:45		Sep-19-18 10:45		Sep-19-18 10:45		Sep-19-18 10:45					
	Units/RL:	%	RL	%	RL	%	RL	%	RL				
Percent Moisture		6.70		3.46		8.73		3.33					

Debbie Simmons
Project Manager

Analytical Report 599296

for

GHD Services, INC- Midland

Project Manager: Scott Foord

CEMC CVU199

11121242/2018

25-SEP-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-16)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

25-SEP-18

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

Reference: XENCO Report No(s): **599296**
CEMC CVU199
Project Address: Lovington, NM

Scott Foord:

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) 599296. 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. 599296 will be filed for 45 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,

Debbie Simmons
Project Manager

Sample Cross Reference 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW1-4-130918	S	09-13-18 08:25	4	599296-001
MW1-10-130918	S	09-13-18 08:30	10	599296-002
MW1-20-130918	S	09-13-18 08:35	20	599296-003
MW1-30-130918	S	09-13-18 08:40	30	599296-004
MW1-40-130918	S	09-13-18 08:45	40	599296-005
MW1-50-130918	S	09-13-18 08:50	50	599296-006
MW1-60-130918	S	09-13-18 08:55	60	599296-007
MW1-70-130918	S	09-13-18 09:00	70	599296-008
MW1-80-130918	S	09-13-18 09:05	80	599296-009
MW1-90-130918	S	09-13-18 09:10	90	599296-010

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-4-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-001	Date Collected:	09.13.18 08.25	Sample Depth:	4
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	10.54
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**294**	5.53	mg/kg	09.21.18 21.09		1

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-10-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-002	Date Collected:	09.13.18 08.30	Sample Depth:	10
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	10.66
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1870**	27.9	mg/kg	09.21.18 21.26		5

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-20-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-003	Date Collected:	09.13.18 08.35	Sample Depth:	20
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.69
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1940**	26.9	mg/kg	09.21.18 21.32		5

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-30-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-004	Date Collected:	09.13.18 08.40	Sample Depth:	30
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.57
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**680**	5.36	mg/kg	09.21.18 21.38		1

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-40-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-005	Date Collected:	09.13.18 08.45	Sample Depth:	40
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	5.85
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**115**	5.31	mg/kg	09.21.18 21.43		1

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-50-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-006	Date Collected:	09.13.18 08.50	Sample Depth:	50
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	5.2
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**39.7**	5.24	mg/kg	09.21.18 21.49		1

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-60-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-007	Date Collected:	09.13.18 08.55	Sample Depth:	60
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.7
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**45.0**	5.31	mg/kg	09.21.18 21.55		1

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-70-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-008	Date Collected:	09.13.18 09.00	Sample Depth:	70
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	3.46
Analyst:	SCM	Date Prep:	09.21.18 12.45	Basis:	Dry Weight
Seq Number:	3064141				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**14.8**	5.14	mg/kg	09.21.18 22.00		1

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-80-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-009	Date Collected:	09.13.18 09.05	Sample Depth:	80
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	8.73
Analyst:	SCM	Date Prep:	09.21.18 15.00	Basis:	Dry Weight
Seq Number:	3064143				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**31.6**	5.50	mg/kg	09.21.18 23.37		1

Certificate of Analytical Results 599296

GHD Services, INC- Midland, Midland, TX

CEMC CVU199

Sample Id:	**MW1-90-130918**	Matrix:	Soil	Date Received:	09.17.18 13.19
Lab Sample Id:	599296-010	Date Collected:	09.13.18 09.10	Sample Depth:	90
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	3.33
Analyst:	SCM	Date Prep:	09.21.18 15.00	Basis:	Dry Weight
Seq Number:	3064143				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**21.9**	5.17	mg/kg	09.21.18 23.54		1

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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

QC Summary 599296

GHD Services, INC- Midland

CEMC CVU199

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064141 Matrix: Solid Date Prep: 09.21.18
MB Sample Id: 7662796-1-BLK LCS Sample Id: 7662796-1-BKS LCSD Sample Id: 7662796-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	255	102	256	102	90-110	0	20	mg/kg	09.21.18 19:16	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064143 Matrix: Solid Date Prep: 09.21.18
MB Sample Id: 7662799-1-BLK LCS Sample Id: 7662799-1-BKS LCSD Sample Id: 7662799-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	256	102	255	102	90-110	0	20	mg/kg	09.21.18 23:25	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064141 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599287-039 MS Sample Id: 599287-039 S MSD Sample Id: 599287-039 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	34.5	255	308	107	307	107	90-110	0	20	mg/kg	09.21.18 19:33	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064141 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599293-009 MS Sample Id: 599293-009 S MSD Sample Id: 599293-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	345	270	616	100	618	101	90-110	0	20	mg/kg	09.21.18 20:52	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064143 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599296-009 MS Sample Id: 599296-009 S MSD Sample Id: 599296-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	31.6	275	322	106	321	105	90-110	0	20	mg/kg	09.21.18 23:42	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 599296

GHD Services, INC- Midland

CEMC CVU199

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064143 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599515-010 MS Sample Id: 599515-010 S MSD Sample Id: 599515-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	432	248	672	97	671	96	90-110	0	20	mg/kg	09.22.18 01:02	

Analytical Method: **Percent Moisture**
Seq Number: 3063782 Matrix: Solid
MB Sample Id: 3063782-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<	%	09.19.18 10:45	

Analytical Method: **Percent Moisture**
Seq Number: 3063782 Matrix: Soil
Parent Sample Id: 599296-001 MD Sample Id: 599296-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	10.5	9.95	5	20	%	09.19.18 10:45	

Analytical Method: **Percent Moisture**
Seq Number: 3063782 Matrix: Soil
Parent Sample Id: 599520-001 MD Sample Id: 599520-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	3.28	3.29	0	20	%	09.19.18 10:45	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

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Lakeland, Florida (863-646-8526)
Tampa, Florida (813-620-2000)
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Xenco Quote # | Xenco Job # 599294

Client / Reporting Information

Company Name / Branch: GHD-Midland
Company Address: 2135 S Loop 250 W, Midland, TX 79703
Email: william.foord@ghd.com, Christopher.Knight@ghd.com
Phone No: 713-734-3090, 512-506-8803
Project Contact: Scott Foord
Samplers's Name: Sean Parry

Project Information

Project Name/Number: ~~CEMOLPU-00/073817.2018.001~~ CVU199-11121242
Project Location: Lovington, NM
Invoice To: Cenergy Partners c/o Jason Michaelson, Chevron Enviromental Management Company, 1400 Smith Street, Office 07084 Houston, Texas 77002
PO Number:

Analytical Information

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

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	Chloride	% Moisture	Field Comments
1	MW1-4-130918	4	9/13/18	0825	S	1								X	X	X	
2	MW1-10-130918	10		0830		1								X	X	X	
3	MW1-20-130918	20		0835		1								X	X	X	
4	MW1-30-130918	30		0840		1								X	X	X	
5	MW1-40-130918	40		0845		1								X	X	X	
6	MW1-50-130918	50		0850		1								X	X	X	
7	MW1-60-130918	60		0855		1								X	X	X	
8	MW1-70-130918	70		0900		1								X	X	X	
9	MW1-80-130918	80		0905		1								X	X	X	
10	MW1-90-130918	90		0910		1								X	X	X	

Turnaround Time (Business days)

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

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

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

Notes:

FED-EX / UPS: Tracking #

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

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		9/17/18 13:15	1	2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice: X; Cooler Temp.: 2.1

Thermo. Corr. Factor: 0.0

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

Final 1.000

Page 20 of 21

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 09/17/2018 01:19:00 PM

Work Order #: 599296

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.1
#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 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Katie Lowe Date: 09/17/2018

Checklist reviewed by: Debbie Simmons Date: 09/19/2018

Certificate of Analysis Summary 604308

GHD Services, INC- Midland, Midland, TX

Project Name: CEMC CVU-199

Project Id: 11121242-2018-001
Contact: Scott Foord
Project Location:

Date Received in Lab: Fri Nov-02-18 11:15 am
Report Date: 13-NOV-18
Project Manager: Debbie Simmons

Analysis Requested								
	Lab Id:	604308-001						
	Field Id:	MW-1-W-181031						
	Depth:							
	Matrix:	GROUND WATER						
	Sampled:	Oct-31-18 15:45						
Chloride by EPA 300	***Extracted:***	Nov-07-18 10:00						
	Analyzed:	Nov-07-18 16:06						
	Units/RL:	mg/L	RL					
Chloride		151	2.50					
TDS by SM2540C	***Extracted:***							
	Analyzed:	Nov-05-18 15:00						
	Units/RL:	mg/L	RL					
Total Dissolved Solids		772	5.00					
TPH By SW8015 Mod	***Extracted:***	Nov-03-18 08:00						
	Analyzed:	Nov-03-18 15:54						
	Units/RL:	mg/L	RL					
Gasoline Range Hydrocarbons (GRO)		<1.50	1.50					
Diesel Range Organics (DRO)		<1.50	1.50					
Motor Oil Range Hydrocarbons (MRO)		<1.50	1.50					
Total TPH		<1.50	1.50					

Debbie Simmons
Project Manager

Analytical Report 604308

for

GHD Services, INC- Midland

Project Manager: Scott Foord

CEMC CVU-199

11121242-2018-001

13-NOV-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

13-NOV-18

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

Reference: XENCO Report No(s): **604308**
CEMC CVU-199
Project Address:

Scott Foord:

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) 604308. 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. 604308 will be filed for 45 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,

Debbie Simmons
Project Manager

Sample Cross Reference 604308

GHD Services, INC- Midland, Midland, TX

CEMC CVU-199

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1-W-181031	W	10-31-18 15:45		604308-001

CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: CEMC CVU-199

Project ID: *11121242-2018-001*
Work Order Number(s): *604308*

Report Date: *13-NOV-18*
Date Received: *11/02/2018*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results 604308

GHD Services, INC- Midland, Midland, TX

CEMC CVU-199

Sample Id: **MW-1-W-181031** Matrix: Ground Water Date Received:11.02.18 11.15

Lab Sample Id: 604308-001 Date Collected: 10.31.18 15.45

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 11.07.18 10.00

Seq Number: 3069004

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**151**	2.50	mg/L	11.07.18 16.06		5

Analytical Method: TDS by SM2540C

Tech: OJS % Moisture:

Analyst: OJS

Seq Number: 3068617

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	1642222	**772**	5.00	mg/L	11.05.18 15.00		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 11.03.18 08.00

Seq Number: 3068440

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<1.50	1.50	mg/L	11.03.18 15.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<1.50	1.50	mg/L	11.03.18 15.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<1.50	1.50	mg/L	11.03.18 15.54	U	1
Total TPH	PHC635	<1.50	1.50	mg/L	11.03.18 15.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	11.03.18 15.54	
o-Terphenyl	84-15-1	96	%	70-135	11.03.18 15.54	

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

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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

QC Summary 604308

GHD Services, INC- Midland

CEMC CVU-199

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3069004 Matrix: Water Date Prep: 11.07.18
MB Sample Id: 7665626-1-BLK LCS Sample Id: 7665626-1-BKS LCSD Sample Id: 7665626-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	25.0	24.1	96	24.2	97	90-110	0	20	mg/L	11.07.18 11:17	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3069004 Matrix: Drinking Water Date Prep: 11.07.18
Parent Sample Id: 604625-001 MS Sample Id: 604625-001 S MSD Sample Id: 604625-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8.25	25.0	34.6	105	34.7	106	90-110	0	20	mg/L	11.07.18 11:48	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3069004 Matrix: Drinking Water Date Prep: 11.07.18
Parent Sample Id: 604651-001 MS Sample Id: 604651-001 S MSD Sample Id: 604651-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.5	25.0	37.9	110	37.9	110	90-110	0	20	mg/L	11.07.18 14:13	

Analytical Method: **TDS by SM2540C**
Seq Number: 3068617 Matrix: Water
MB Sample Id: 3068617-1-BLK LCS Sample Id: 3068617-1-BKS LCSD Sample Id: 3068617-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	950	95	975	98	80-120	3	10	mg/L	11.05.18 15:00	

Analytical Method: **TDS by SM2540C**
Seq Number: 3068617 Matrix: Ground Water
Parent Sample Id: 604161-001 MD Sample Id: 604161-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	5100	5560	9	10	mg/L	11.05.18 15:00	

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 604308

GHD Services, INC- Midland

CEMC CVU-199

Analytical Method: **TDS by SM2540C**
Seq Number: 3068617 Matrix: Ground Water
Parent Sample Id: 604308-001 MD Sample Id: 604308-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	772	755	2	10	mg/L	11.05.18 15:00	

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3068440 Matrix: Water Date Prep: 11.03.18
MB Sample Id: 7665417-1-BLK LCS Sample Id: 7665417-1-BKS LCSD Sample Id: 7665417-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<0.986	99.8	94.4	95	99.2	99	70-135	5	20	mg/L	11.03.18 10:07	
Diesel Range Organics (DRO)	<0.911	99.8	105	105	105	105	70-135	0	20	mg/L	11.03.18 10:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		127		124		70-135	%	11.03.18 10:07
o-Terphenyl	112		112		117		70-135	%	11.03.18 10:07

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3068440 Matrix: Ground Water Date Prep: 11.03.18
Parent Sample Id: 604307-001 MS Sample Id: 604307-001 S MSD Sample Id: 604307-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<0.986	99.8	94.7	95	87.9	88	70-135	7	20	mg/L	11.03.18 11:05	
Diesel Range Organics (DRO)	0.994	99.8	104	103	95.5	95	70-135	9	20	mg/L	11.03.18 11:05	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	129		119		70-135	%	11.03.18 11:05
o-Terphenyl	128		117		70-135	%	11.03.18 11:05

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Chain of Custody

Work Order No: 604308

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)
www.xenco.com

Project Manager:	Scott Foord	Bill to: (if different)	Jason Michaelson
Company Name:	GHD	Company Name:	Chevron Enviromental Management Company
Address:	2135 S. Loop 250 West	Address:	1400 Smith Street, Office 07094
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	Houston, TX. 77002
Phone:	713-734-3090 or 281-725-7477	Email:	William.Foord@ghd.com & Christopher.Knight@ghd.com & Megan.Willis@ghd.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting:Level II ☑ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	CEMC CVU-199	Turn Around	
Project Number:	11121242-2018-001	Routine ☑	
P.O. Number:		Rush:	
Sampler's Name:	Justin Nixon	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Temperature (°C):	2	Thermometer ID		
Received Intact:	Yes No			
Cooler Custody Seals:	Yes No N/A	Correction Factor:	0.0	
Sample Custody Seals:	Yes No N/A	Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chloride	TDS	TPH (SW8015)	Work Order Notes
MW-1-W-181031	GW	10-31-18	1545		3	X	X	X	TAT starts the day recevied by the lab, if received by 4:30pm
									Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		11-2-18 1115	2		
3			4		
5			6		

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 11/02/2018 11:15:00 AM

Work Order #: 604308

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.5
#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 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**Yes**

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

Analyst: BT

PH Device/Lot#: A032690

Checklist completed by: Katie Lowe Date: 11/02/2018

Checklist reviewed by: Debbie Simmons Date: 11/02/2018

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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