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APPROVED
By Olivia Yu at 10:01 am, Sep 17, 2018

July 25, 2018

NMOCD approves of the proposed additional delineation and installation of MW-2 for 1RP-1498.

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

Re: Chevron Lovington Paddock Unit 60
2017 Soil Assessment Report
Case No. RP-1498
Lea County, New Mexico

Dear Ms. Yu,

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

- Lovington Paddock Unit 60 – 2017 Soil Assessment Report, Unit F, Section 1, Township 17 South, Range 36 East; Lea County New Mexico.

The report was prepared by GHD Services (GHD) on behalf of Chevron Environmental Management Company (CEMC) to document on-going assessment activities throughout 2017 at the Site.

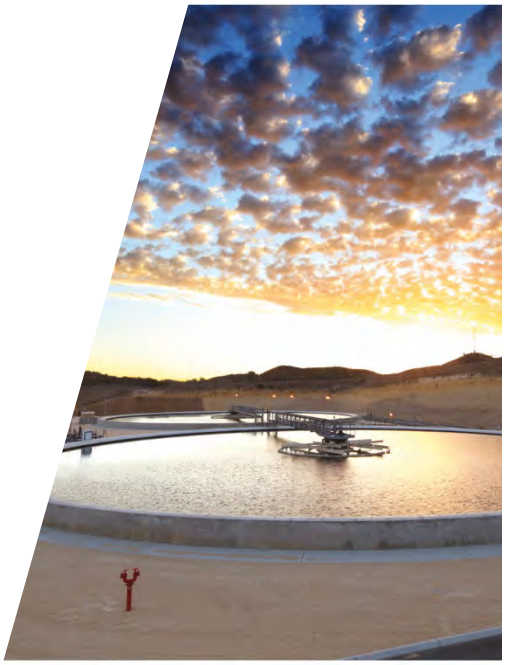
Please do not hesitate to call Scott Foord with GHD at 713-734-3090 or myself at 713-372-0289, should you have any questions.

Sincerely,

Jason Michelson

Encl. Lovington Paddock Unit 60 – 2017 Soil Assessment Report

C.C. Amy Barnhill, Chevron/MCBU



Site Assessment Report

Lovington Paddock Unit 60
Produced Water Release
RP-1498
Lea County, New Mexico

Chevron Environmental Management Company

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1. Introduction

On behalf of Chevron Environmental Management Company (CEMC), GHD Services Inc. (GHD) has prepared this report summarizing site assessment activities at the Lovington Paddock Unit (LPU) 60 site (hereafter referred to as the "Site"). The Site is located in Unit F, Section 1, Township 17 South, Range 36 East, approximately 5 miles southeast of the City of Lovington (COL) in Lea County, New Mexico. The land surface is owned by the COL, and the minerals are managed by the State of New Mexico. The location of the Site is identified on the vicinity map on Figure 1 and the aerial map on Figure 2.

2. Background

CEMC submitted a C-141 Form to the New Mexico Oil Conservation Division (NMOCD) dated July 24, 2007 reporting a release of approximately 50 barrels of produced brine from the failure of a water injection trunkline. The approximate affected area was estimated at 2,950 square feet. NMOCD incident number RP-1498 was assigned by the NMOCD Hobbs office.

Shallow soil samples were collected in August 2010 from two locations (T-1 & T-2) in the affected area at depths of approximately 2.5 feet below ground surface (bgs). Sample analyses included total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); and chloride. TPH and BTEX concentrations were below laboratory detection limits in the upper sample intervals of T-1 and T-2 (0-1 feet and 0-0.5 feet, respectively), and therefore were not analyzed at the deeper interval. However, chloride results at location T-1 exceeded the Recommended Remedial Action Level (RRAL) of 250 milligrams per kilogram (mg/kg) at both intervals.

In May 2011, Harrison Cooper, Inc. (HCI) advanced five soil borings (SB-1 through SB-5) utilizing an air-rotary drilling rig to depths of approximately 40 feet bgs. Soil samples were collected at five-foot intervals at depths ranging from 20 to 40 feet bgs (pending chloride field screening results) within each of the five soil borings. Soil samples were submitted for analysis of chloride by EPA Method 300. Laboratory analytical results for chloride indicated that the vertical extent of impact was not yet defined in borings SB-2, SB-3, and SB-5. On June 27, 2012, GHD and CEMC met at the NMOCD District 1 Hobbs office to discuss the path forward for the Site. The NMOCD requested additional assessment be completed to further assess the vertical extent of chloride impacts.

In December 2012, under the supervision of GHD, HCI advanced two additional borings (SB-2b and SB-5b) to depths of 70 feet bgs utilizing an air-rotary drilling rig. Soil samples were collected at 10-foot intervals from depths of 40 to 70 feet bgs and submitted for analysis of chloride by EPA Method 300 in an effort to delineate the vertical extent of chloride impacts. Chloride concentrations above the RRAL were reported in both soil borings. Groundwater was not encountered in either boring. Soil analytical results are included in Table 1 and soil boring locations are depicted on Figure 3.

Monitoring well MW-1 was installed in October 2016 to assess potential groundwater impact in follow-up to soil analytical results reported during previous assessment activities. No soil samples were collected during MW-1 installation activities. The depth to groundwater was confirmed at the Site at 101 feet bgs. Chloride concentrations reported for the groundwater sample collected from

MW-1 in October 2016 were below the New Mexico Water Quality Control Commission (NMWQCC) standard of 250 mg/L.

Analytical results associated with assessment activities conducted from 2011 through 2016 indicate that the horizontal and vertical extent of chloride impact in soil had not been fully delineated. MW-1 was re-sampled in May 2017, and six additional soil borings (SB-6 through SB-11) were advanced and analytical analyses performed in October 2017 in an attempt to fully delineate the horizontal extents of chloride impact to soil. Results from the 2017 assessment activities are summarized below.

3. Remediation Standards

Soil

Information available from various sources including the Petroleum Recovery Research Center (PRRC) Mapping Portal, GHD currently managed groundwater site(s) data, and the United States Geological Survey (USGS) Current Water Database for the Nation, concludes:

a) The depth to groundwater from the deepest impacted soil at the Site is less than 50-feet bgs.

b) The nearest private domestic water source is greater than 200-feet from the release site.

c) The nearest public/municipal water source is greater than 1,000-feet from the release site.

d) The release site lies more than 1,000 horizontal feet from the nearest surface water body.

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). Consequently, the NMOCD total ranking criteria score is twenty (20) for the Site. The site-specific RRALs applied to this location by the NMOCD are 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 an NMOCD accepted 600 mg/kg for horizontal and 250 mg/kg for vertical delineation of chlorides.

In an August 28, 2017 telephone conversation between Bernard Bockisch (GHD) and Jim Griswold (NMOCD Environmental Bureau Chief), GHD was informed that the NMOCD is accepting chloride concentrations of 600 mg/kg for the horizontal delineation assessment clean up levels.

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 NMWQCC set forth in New Mexico Administrative Code 20.6.2.3103. Standards for BTEX and chloride are listed below.

Analyte	NMWQCC Groundwater Standard (mg/L)
Benzene	0.01
Toluene	0.75
Ethylbenzene	0.75
Total Xylenes	0.62
Chloride	250

NMWQCC groundwater standards do not include TPH.

4. Geophysical Survey – EM31 and ER

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. Survey coverage data are presented on attached Figures 4 (EM Survey Results) and 5 (ER Survey Results and Historical Soil Analytical Data).

The EM survey was completed with an EM31 terrain conductivity meter. Prior to conducting the EM31 survey, a grid consisting of parallel lines was established over the proposed area of investigation indicated on Figure 4. Measurements of EM31 data were collected along 30-foot spaced grid lines over the area of investigation, with station spacings of approximately 4 feet on all grid lines. The ER survey line location was chosen based on the EM31 survey results, and transected the EM31 conductivity anomaly. The configuration of the electrodes (also called an array) and the electrode spacings were optimized to achieve an approximate depth of investigation of approximately 70 feet bgs, and the electrode spacing on all grid lines was on the order of 6.6 feet (i.e. 2 meters).

4.1 EM31 Survey Methodology

The EM31 survey was completed to determine the horizontal extent or limits of chloride impacts in the shallow subsurface soils at the Site. The EM31 consists of transmitter and receiver coils located at opposite ends of a rigid boom. The coil separation for the EM31 is approximately 13 feet, which yields an approximate depth of penetration of 18 feet bgs in vertical dipole mode. Measurements of terrain conductivity from the EM31 were used to assess the extent of chloride impacts at the Site. The data for the EM31 survey were then processed as a colored contour plot. The plot was superimposed on an aerial image of the Site plan, and was used to locate elevated conductivity responses indicative of chloride-impacted areas relative to the Site features. Figure 4 depicts the EM31 survey results.

4.2 EM31 Survey Results

The colored contour conductivity plot presented on Figure 4 reveals the highest intensity conductivity responses are colored red to purple, while areas of low response are colored blue. All remaining intermediate responses correspond to the color scale presented on the figure. Results from non-impacted areas within the survey coverage indicate background conductivity responses were

approximately 20 milliSiemens/meter (mS/m). Anomalous responses relative to background were generally 3 to 7 times higher, and ranged from approximately 60 to 140 mS/m. The EM31 survey results delineated one main area of suspected brine-impacted soils centrally located around SB-3. Several small conductive zones were detected along the pipelines that intercept the Site, with some of the higher responses believed associated with conductive metallic piping.

4.3 ER Survey Methodology

The ER survey profile was completed in August 2017 to determine the vertical extent of chloride-impact in soil on one selected survey line located diagonally across the northwest to southeast transect of the Site (see Figure 4). This area exhibited the highest responses during the EM31 survey. The ER survey was conducted with a dual-function resistivity meter, which operates simultaneously as a transmitter and receiver. The survey utilized two multi-electrode cables yielding a total spread of 72 electrodes. The receiver was programmed to automatically "switch" between measured quadripoles, yielding a pseudosection of apparent resistivity. The apparent resistivity data were then imported into an inversion software program, and processed to yield a modeled profile section of resistivity.

4.4 ER Survey Results

The electrical resistivity results for the survey line are presented on Figure 5. These results are based on the measured apparent resistivity values for various depths along the survey line. Calculations of measured apparent resistivity values include the type of ER array (Wenner), the electrode spacing, and raw field data (i.e., applied current and measured voltage for each data point).

The measured apparent resistivity data were processed with the inversion program RES2DINV, to yield the modeled resistivity section presented on Figure 5. The modeled section represents the resistance of earth materials in the shallow subsurface, and thus provides an interpretation of the overburden sequences and areas of suspected brine impacts along the survey line. The highest resistivity values are colored dark blue, while areas of low resistivity (or conversely, high conductivity) are colored yellow to red. All remaining intermediate responses correspond to the color scale presented on the bottom of each section.

The colored plot reveals that the contour intervals ranged from 2.25 to 1,000 Ohm.meters (Ohm.m). The intermediate contour intervals were determined by applying a normalized distribution curve to the data such that the entire range of responses could be identified by discrete colors. The interpreted colored contoured plot suggests that suspected brine-impacted soils can likely be characterized by modeled responses of approximately 2.25 to 85 Ohm.m.

4.5 Geophysical Survey Correlations/Conclusions

- The EM31 survey delineated one main area of suspected brine-impacted soils at the Site.
- In general, the ER survey results indicate the zone of suspected brine impact is affecting soils from the surface down to at least 70 feet bgs (depth limit of the ER survey).
- The suspected brine impacts appear to correlate well with soil sample analytical results for chloride from the previous assessment activities.

5. Soil Assessment

In order to further define the horizontal and vertical extent of chloride impact, six additional soil borings (SB-6 though SB-11) were installed using an air rotary drilling rig. GHD's contracted service provider, HCI, a New Mexico-licensed water well driller, and GHD mobilized to the Site to begin drilling activities on October 23, 2017. Each boring location was cleared for underground utilities with the use of an air knife up to a depth of 5.0 feet bgs or refusal. Soil borings SB-6 and SB-8 were advanced to 100 feet bgs, and SB-7, SB-9, SB-10, and SB-11 to 90 feet bgs. Site details and boring locations are depicted on Figure 3.

Chloride screening was accomplished in the field by mixing soil samples with distilled water, then testing the rinsate using Hach chloride test strips. The soil types observed during drilling of SB-6 through SB-11 consisted primarily of silty sands. The soils were logged in accordance with the Unified Soil Classification System, and soil boring logs are provided in Appendix A.

Soil samples were collected at 0.5-1 feet bgs, 4-5 feet bgs, and then ten-foot intervals starting at 9-10 feet bgs within each of the six soil borings. Soil samples were placed in laboratory-supplied sample containers on ice, labeled, and submitted to Xenco Laboratories in Midland, Texas for analysis of chlorides by EPA Method 300. Groundwater was not encountered in any of the soil borings. Following completion of activities, the soil cuttings were returned to their respective boreholes and backfilled with hydrated bentonite pellets from 10 feet bgs to the ground surface.

5.1 Soil Analytical Results

Analytical results associated with the soil boring installation activities performed in October 2017 are discussed in the following section. Some of the deeper soil samples were held by the laboratory pending results of shallower soil samples, and were subsequently not analyzed at the direction of GHD. Analytical results are presented in Table 1 and the laboratory reports are provided in Appendix B. These results are summarized below and shown in map view on Figure 6.

- SB-6 exceeded the RRAL for chloride at depths extending from 39 to 90 feet bgs, with concentrations ranging from 622 mg/kg (89-90 ft bgs) to 1,300 mg/kg (49-60 ft bgs ft). The soil sample collected from the terminal depth (99-100 ft bgs) reported chloride at 168 mg/kg.
- No samples collected from SB-7 were reported with chloride concentrations above the site specific RRAL of 250 mg/kg for chlorides.
- SB-8 exceeded the RRAL for chloride at depths extending from 4 to 100 feet bgs, with concentrations ranging from 854 mg/kg (79-80 feet bgs) to 5,570 mg/kg (39-40 feet bgs ft). The soil sample collected from the terminal depth (99-100 ft bgs) reported chloride at 1,920 mg/kg.
- Soil samples collected from SB-9 exceeded the RRAL for chloride at depths extending from 9 to 40 feet bgs, with concentrations ranging from 308 mg/kg (39-40 feet bgs) to 409 mg/kg (9-10 feet bgs ft). The soil sample collected from the terminal depth (89-90 feet bgs) reported chloride at 129 mg/kg.
- SB-10 exhibited chloride concentrations exceeding the RRAL in three sample intervals (0.5-1 feet bgs at 1,190 mg/kg, 4-5 feet bgs at 703 mg/kg, and 9-10 feet bgs at 673 mg/kg). The deepest soil sample analyzed (29-30 feet bgs) reported a chloride concentration of 50 mg/kg.

- SB-11 exhibited chloride concentrations exceeding the RRAL for chloride at all but one depth extending from 4 to 90 feet bgs, with concentrations ranging from 283 mg/kg (69-70 feet bgs) to 1,040 mg/kg (4-5 feet bgs). The soil sample collected at 79-80 feet bgs was not reported above the RRAL for chloride. The soil sample collected from the terminal depth (89-90 feet bgs) reported chloride at 352 mg/kg.

6. Groundwater Assessment

Groundwater sample results from existing monitoring well MW-1 collected in October 2016 reported chloride concentrations below the NMWQCC standard of 250 mg/L. MW-1 was re-sampled in May 2017, and the details are described below.

6.1 Groundwater Sampling

Depth to groundwater was measured in MW-1 to the nearest hundredth of a foot (104.93 feet bgs) from the top of casing using an electronic water level meter on May 26, 2017. The conductivity profile of the water column was determined by recording conductivity at five-foot intervals from the top of the water column to the total depth of the well (221 feet bgs). Field equipment was decontaminated with an Alconox ™ wash and distilled water rinse before beginning field activities. The results of the conductivity profile are summarized on Table 2.

MW-1 was sampled using a Hydrasleeve sampler. The groundwater sample was collected after the Hydrasleeve was lowered to the depth of the highest conductivity measurement (i.e., 225 feet below the top of casing). The sampler was removed from the well and the sample was placed in laboratory-supplied containers and chilled on ice in an insulated cooler. The sample was delivered under chain-of-custody documentation to Xenco Laboratories of Midland, Texas for analysis of chloride by EPA method 300 and total dissolved solids (TDS) by method SM 2540C.

6.2 Groundwater Analytical Results

Chloride was reported at a concentration of 83.6 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 432 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 3 in reference to NMWQCC standards. The laboratory analytical report is provided in Appendix B.

7. Conclusions

Analytical results associated with soil assessment activities conducted from 2010 through 2017 indicated the horizontal and vertical extents of the chloride impact in soil have not been fully delineated. Recent groundwater confirmation sampling of MW-1 confirms groundwater is not impacted in that location.

8. 2018 Assessment Activities

On February 13, 2018, GHD and Chevron representatives met with NMOCD to discuss further assessment activities addressing the presence of chloride in soil and the potential presence of chloride in groundwater at the Site. Additional assessment activities based on those discussions are summarized in the Work Plan included in Appendix C of this report.

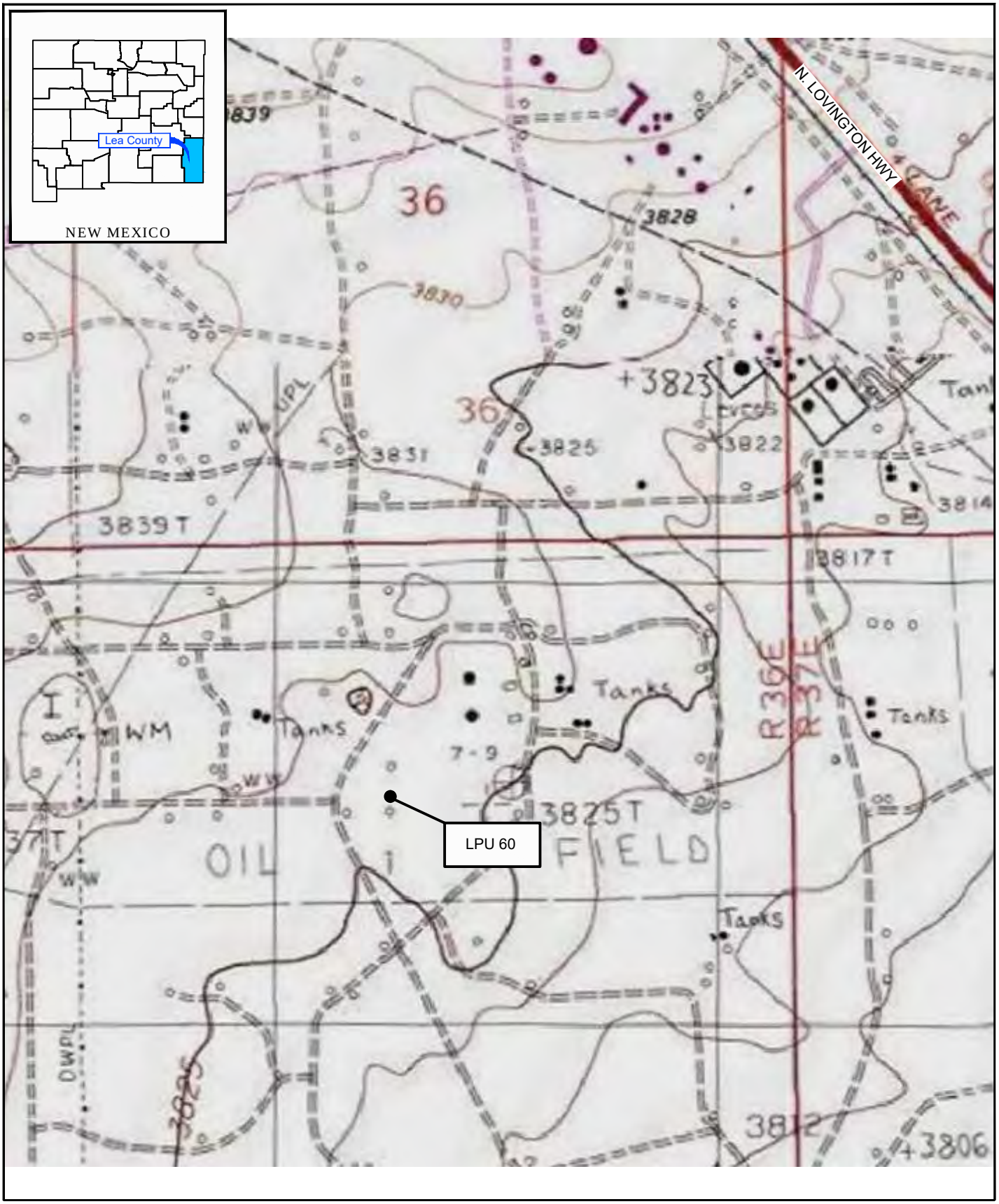
Submitted by:

GHD

Scott Foord, P.G., Project Manager

Raaj Patel, Program Manager

Figures



Source: USGS 7.5 Minute Topographic Map

Lat/Long: 32.866167° North, 103.309028° West

0 500 1000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

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073817-2017
Feb 21, 2018

SITE VICINITY MAP

FIGURE 1

CAD File: I:\CAD\Files\07----\073---\073817-CEMC-LPU #60\073817-2017\073817-2017(002)\073817-2017(002)GN-DL001.dwg

Source: ESRI 1999 Aerial Photograph

Lat/Long: 32.866167° North, 103.309028° West

0 500 1000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

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LPU-60 RELEASE

073817-2017
Feb 21, 2018

SITE LOCATION MAP

FIGURE 2

CAD File: I:\CAD\Files\07----\073---\073817-CEMC-LPU #60\073817-2017\073817-2017(002)\073817-2017(002)GN-DL002.dwg

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

Lat/Long: 32.866167° North, 103.309028° West

0 20 40ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

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LEA COUNTY, NEW MEXICO
LPU-60 RELEASE

073817-2017
Apr 27, 2018

SOIL BORING AND MONITORING WELL LOCATION MAP

FIGURE 3

CAD File: I:\CAD\Files\07----\073---\073817-CEMC-LPU #60\073817-2017\073817-2017(002)\073817-2017(002)GN-DL003.dwg

EM31 CONDUCTIVITY RESPONSE (mS/m)

200
175
150
125
100
75
50
25
0

4+50
4+00
3+50
3+00
2+50
2+00
1+50
1+00
0+50
0+00

SB-6
SB-11
SB-1
SB-2
SB-9
T-1
SB-2b
SB-3
T-2
MW-1
SB-7
SB-5b
SB-8
SB-4
SB-10

FLOWLINES

LEGEND

- BORING LOCATION (MAY 2011 / DECEMBER 2012)
- BORING LOCATION (OCTOBER 2017)
- SAMPLE TRENCH (AUGUST 2010)
- 2" METAL FLOWLINE
- MONITORING WELL LOCATION
- ELECTRICAL RESISTIVITY SURVEY LINE

Imagery Source: Microsoft and Affiliated Data Providers

0 20 60ft

Coordinate System:
NAD 83 STATE PLANE -
NEW MEXICO EAST (US FEET)

GHD

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LEA COUNTY, NEW MEXICO
LPU 60 RELEASE

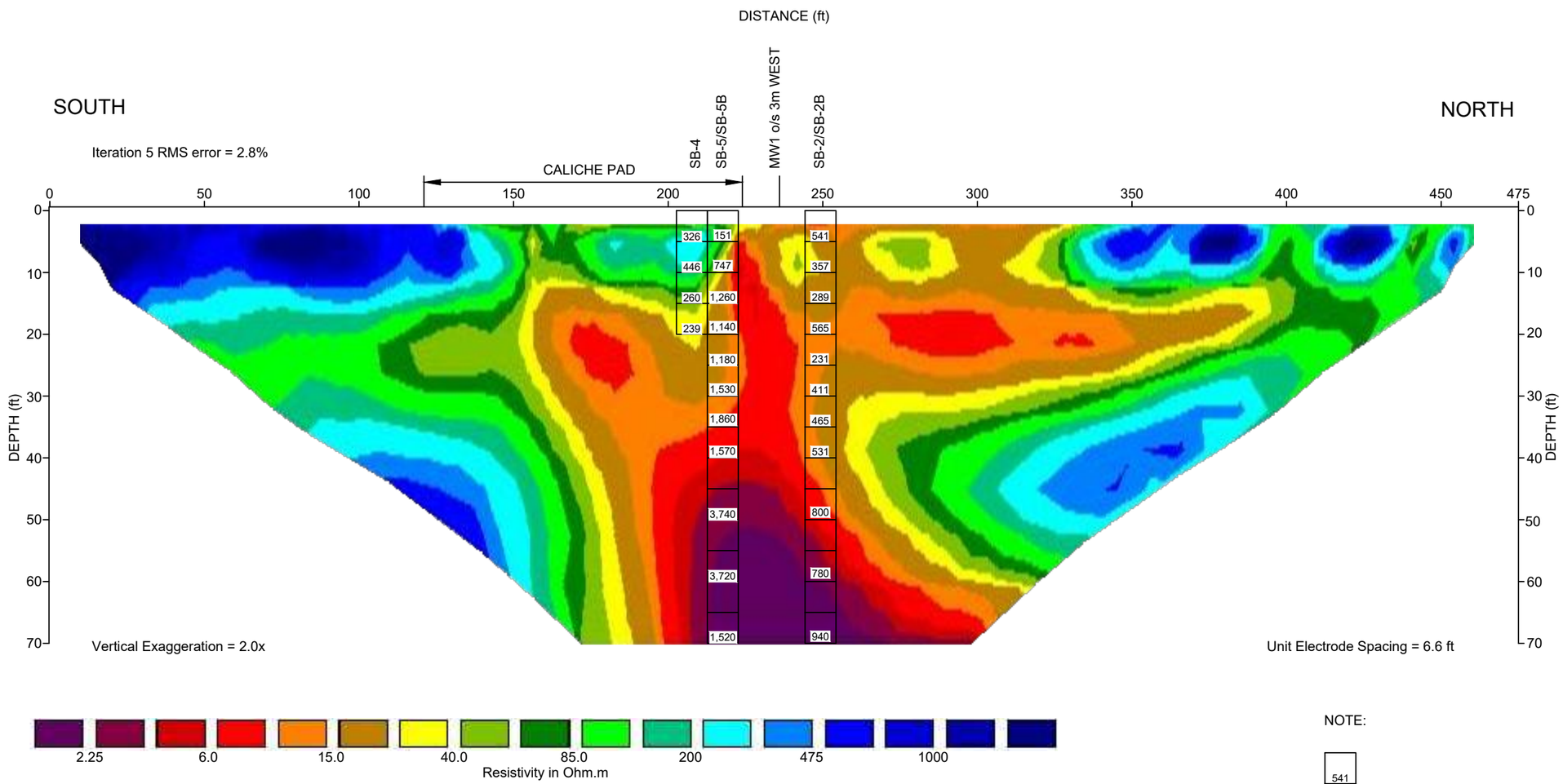
EM31 GEOPHYSICAL INVESTIGATION

073817-2017
Apr 11, 2018

FIGURE 4

CAD File: P:\drawings\73000s\73817\73817-REPORTS\73817-2017(002)\73817-2017(002)GN\073817-2017(002)GN-WA001.dwg

LPU 60 - LINE 1
INVERSE MODEL RESISTIVITY SECTION



NOTE:

CHLORIDE CONCENTRATION (mg/Kg)
541
357
289
565
231

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ELECTRICAL RESISTIVITY SURVEY RESULTS
AND HISTORICAL SOIL ANALYTICAL DATA

073817-2017
Apr 11, 2018

FIGURE 5

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

Lat/Long: 32.866167° North, 103.309028° West

0 20 40ft

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

Sample ID — SB-10 10/24/17 — Sample Date
Depth 0.5-1' — Sample Depth (ft)
Chloride 1190 — Sample Result (mg/kg)

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LPU-60 RELEASE

073817-2017

Apr 27, 2018

CHLORIDE ANALYTICAL RESULTS MAP

FIGURE 6

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Tables

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LOVINGTON PADDOCK UNIT 60
UNIT F, SECTION 1-T17S-R36E, LEA COUNTY, NEW MEXICO

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	TPH			Chlorides
								DRO	GRO	GRO/DRO	
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NMOCD Recommended Remediation Action Levels (Total Ranking Score = 20)			**10**	**---**	**---**	**---**	**50**	**---**	**---**	**100**	**250**
T-1	0-1	8/18/10	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00	<50.0	**1110.00**
	2-2.5	8/18/10	--	--	--	--	--	--	--	--	**1620.00**
T-2	0-0.5	8/18/10	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00	<50.0	<200
	0.5-1	8/18/10	--	--	--	--	--	--	--	--	<200
SB-1	4-5	5/27/11	--	--	--	--	--	--	--	--	93.00
	9-10	5/27/11	--	--	--	--	--	--	--	--	166.00
	14-15	5/27/11	--	--	--	--	--	--	--	--	155.00
	19-20	5/27/11	--	--	--	--	--	--	--	--	98.60
SB-2	4-5	5/27/11	--	--	--	--	--	--	--	--	**541**
	9-10	5/27/11	--	--	--	--	--	--	--	--	**357**
	14-15	5/27/11	--	--	--	--	--	--	--	--	**289**
	19-20	5/27/11	--	--	--	--	--	--	--	--	**565**
	24-25	5/27/11	--	--	--	--	--	--	--	--	231.00
	29-30	5/27/11	--	--	--	--	--	--	--	--	**411**
	34-35	5/27/11	--	--	--	--	--	--	--	--	**465**
	39-40	5/27/11	--	--	--	--	--	--	--	--	**531**
SB-2b	49-50	12/18/12	--	--	--	--	--	--	--	--	**800**
	59-60	12/18/12	--	--	--	--	--	--	--	--	**780**
	69-70	12/18/12	--	--	--	--	--	--	--	--	**940**
SB-3	4-5	5/27/11	--	--	--	--	--	--	--	--	245.00
	9-10	5/27/11	--	--	--	--	--	--	--	--	**324**
	14-15	5/27/11	--	--	--	--	--	--	--	--	**498**
	19-20	5/27/11	--	--	--	--	--	--	--	--	**497**
SB-4	4-5	5/27/11	--	--	--	--	--	--	--	--	**326**
	9-10	5/27/11	--	--	--	--	--	--	--	--	**446**
	14-15	5/27/11	--	--	--	--	--	--	--	--	**260**
	19-20	5/27/11	--	--	--	--	--	--	--	--	239.00
SB-5	4-5	5/27/11	--	--	--	--	--	--	--	--	151.00
	9-10	5/27/11	--	--	--	--	--	--	--	--	**747**
	14-15	5/27/11	--	--	--	--	--	--	--	--	**1260**
	19-20	5/27/11	--	--	--	--	--	--	--	--	**1140**
	24-25	5/27/11	--	--	--	--	--	--	--	--	**1180**
	29-30	5/27/11	--	--	--	--	--	--	--	--	**1530**
	34-35	5/27/11	--	--	--	--	--	--	--	--	**1860**
	39-40	5/27/11	--	--	--	--	--	--	--	--	**1570**
SB-5b	49-50	12/18/12	--	--	--	--	--	--	--	--	**3740**
	59-60	12/18/12	--	--	--	--	--	--	--	--	**3720**
	69-70	12/18/12	--	--	--	--	--	--	--	--	**1520**
SB-6	0.5-1	10/23/17	--	--	--	--	--	--	--	--	155.00
	4-5	10/23/17	--	--	--	--	--	--	--	--	48.00
	9-10	10/23/17	--	--	--	--	--	--	--	--	138.00
	19-20	10/23/17	--	--	--	--	--	--	--	--	66.70
	29-30	10/23/17	--	--	--	--	--	--	--	--	189.00
	39-40	10/23/17	--	--	--	--	--	--	--	--	**766**
	49-50	10/23/17	--	--	--	--	--	--	--	--	**1300**
	59-60	10/23/17	--	--	--	--	--	--	--	--	**1300**
	69-70	10/23/17	--	--	--	--	--	--	--	--	**1220**
	79-80	10/23/17	--	--	--	--	--	--	--	--	**873**
	89-90	10/23/17	--	--	--	--	--	--	--	--	**622**
	99-100	10/23/17	--	--	--	--	--	--	--	--	168.00

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LOVINGTON PADDOCK UNIT 60
UNIT F, SECTION 1-T17S-R36E, LEA COUNTY, NEW MEXICO

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	TPH			Chlorides
								DRO	GRO	GRO/DRO	
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NMOCD Recommended Remediation Action Levels (Total Ranking Score = 20)			**10**	**---**	**---**	**---**	**50**	**---**	**---**	**100**	**250**
SB-7	0.5-1	10/23/17	--	--	--	--	--	--	--	--	30.50
	4-5	10/23/17	--	--	--	--	--	--	--	--	30.30
	9-10	10/23/17	--	--	--	--	--	--	--	--	167.00
	19-20	10/23/17	--	--	--	--	--	--	--	--	208.00
SB-8	0.5-1	10/23/17	--	--	--	--	--	--	--	--	49.20
	4-5	10/23/17	--	--	--	--	--	--	--	--	**1070**
	9-10	10/23/17	--	--	--	--	--	--	--	--	**1380**
	19-20	10/23/17	--	--	--	--	--	--	--	--	**2290**
	29-30	10/23/17	--	--	--	--	--	--	--	--	**5270**
	39-40	10/23/17	--	--	--	--	--	--	--	--	**5570**
	49-50	10/23/17	--	--	--	--	--	--	--	--	**3760**
	59-60	10/23/17	--	--	--	--	--	--	--	--	**3010**
	69-70	10/23/17	--	--	--	--	--	--	--	--	**2000**
	79-80	10/23/17	--	--	--	--	--	--	--	--	**854**
	89-90	10/23/17	--	--	--	--	--	--	--	--	**1010**
	99-100	10/23/17	--	--	--	--	--	--	--	--	**1920**
SB-9	0.5-1	10/24/17	--	--	--	--	--	--	--	--	36.80
	4-5	10/24/17	--	--	--	--	--	--	--	--	131.00
	9-10	10/24/17	--	--	--	--	--	--	--	--	**409**
	19-20	10/24/17	--	--	--	--	--	--	--	--	**352**
	29-30	10/24/17	--	--	--	--	--	--	--	--	**360**
	39-40	10/24/17	--	--	--	--	--	--	--	--	**308**
	49-50	10/24/17	--	--	--	--	--	--	--	--	178.00
	59-60	10/24/17	--	--	--	--	--	--	--	--	119.00
	69-70	10/24/17	--	--	--	--	--	--	--	--	163.00
	79-80	10/24/17	--	--	--	--	--	--	--	--	200.00
	89-90	10/24/17	--	--	--	--	--	--	--	--	129.00
SB-10	0.5-1	10/23/17	--	--	--	--	--	--	--	--	**1190**
	4-5	10/23/17	--	--	--	--	--	--	--	--	**703**
	9-10	10/23/17	--	--	--	--	--	--	--	--	**673**
	19-20	10/23/17	--	--	--	--	--	--	--	--	154.00
Dup.	19-20	10/23/17	--	--	--	--	--	--	--	--	142.00
	29-30	10/23/17	--	--	--	--	--	--	--	--	50.20
SB-11	0.5-1	10/24/17	--	--	--	--	--	--	--	--	6.90
	4-5	10/24/17	--	--	--	--	--	--	--	--	**1040**
	9-10	10/24/17	--	--	--	--	--	--	--	--	**673**
	19-20	10/24/17	--	--	--	--	--	--	--	--	**336**
	29-30	10/24/17	--	--	--	--	--	--	--	--	**530**
	39-40	10/24/17	--	--	--	--	--	--	--	--	**496**
	49-50	10/24/17	--	--	--	--	--	--	--	--	**477**
	59-60	10/24/17	--	--	--	--	--	--	--	--	**398**
	69-70	10/24/17	--	--	--	--	--	--	--	--	**283**
	79-80	10/24/17	--	--	--	--	--	--	--	--	223.00
	89-90	10/24/17	--	--	--	--	--	--	--	--	**352**

Notes:

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

TABLE 2

CONDUCTIVITY PROFILE RESULTS 2017
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LOVINGTON PADDOCK UNIT 60
UNIT F, SECTION 1-T17S-R36E, LEA COUNTY, NEW MEXICO

Well: MW-1
Date: 5/26/2017

Depth	Conductivity	Temperature
104.93		
105	777	19.2
110	734	19.1
115	734	19.1
120	734	19.2
125	734	19.2
130	735	19.1
135	747	19.1
140	746	19.1
145	740	19.1
150	741	19.1
155	722	19.1
160	718	19.1
165	717	19.1
170	717	19.1
175	717	19.2
180	719	19.1
185	730	19.1
190	773	19.2
195	775	19.4
200	776	19.4
205	776	19.4
210	779	19.5
215	780	19.5
220	783	19.5
225	800	19.5

NOTES:
Depth - feet below top of casing
Conductivity - microseimens per centimeter
Temperature - degrees Celsius

TABLE 3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
LOVINGTON PADDOCK UNIT 60
UNIT F, SECTION 1-T17S-R36E, LEA COUNTY, NEW MEXICO

Well ID	*Date*	*Benzene*	*Toluene*	*Ethylbenzene*	*Total Xylenes*	*TPH GRO*	*TPH DRO*	*Chloride*	*Total Dissolved Solids*
NMWQCC Standards		***0.01 mg/L***	***0.75 mg/L***	***0.75 mg/L***	***0.62 mg/L***	***-- mg/L***	***-- mg/L***	***250 mg/L***	***1000 mg/L***
MW-1	10/19/16	<0.002	<0.002	<0.002	<0.002	<1.50	<1.50	**206**	--
MW-1	5/26/17	<0.002	<0.002	<0.002	<0.002	<1.50	<1.50	**83.9**	**432**

NOTES:
NMWQCC - New Mexico Water Quality Control Commission
'mg/L' indicates milligrams per liter
Yellow-shaded cells indicate that concentration exceeds NMWQCC standard.
- BTEX analysis by EPA Method 8021B.
- TPH analysis by Method SW8015B.
- Chlorides analyzed by EPA Method 300.

Appendices

Appendix A
SB-6 though SB-11 Boring Logs

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 60
PROJECT NUMBER: 73817
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
HCl

HOLE DESIGNATION: SB-6
DATE COMPLETED: 23 October 2017
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Rebecca Jones

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	CHLORIDES (mg/kg)
	TOP SOIL	1.00					
	CALICHE; light brown		4-5		1.0		<28
	SILTY SAND (SM); light brown, contains caliche	7.50	9-10		1.0		52
			19-20		1.0		<28
	SILTY SAND (SM); light brown	25.00	29-30		1.0		74
			39-40		1.0		227
	SILTY SAND (SM); light brown, contains caliche	45.00	49-50		1.0		354
	SILTY SAND (SM); light brown	55.00	59-60		1.0		411
	SILTY SAND (SM); light brown, contains caliche	65.00	69-70		1.0		382
	SILTY SAND (SM); light brown	75.00	79-80		1.0		263
			89-90		1.0		210
	SILTY SAND (SM); reddish brown	95.00	99-100		1.0		66
	END OF BOREHOLE @ 100.0ft BGS						

NOTES:
LABORATORY ANALYSIS

OVERBURDEN LOG 073817-CVX LPU60.GPJ CRA_CORP.GDT 15/2/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 60
PROJECT NUMBER: 73817
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
HCl

HOLE DESIGNATION: SB-7
DATE COMPLETED: 23 October 2017
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Rebecca Jones

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	CHLORIDES (mg/kg)
0	TOP SOIL	1.00					
	CALICHE; light brown		4-5		1.0		<28
		7.50					
	SILTY SAND (SM); light brown, contains caliche		9-10		1.0		59
			19-20		1.0		74
		25.00					
	SILTY SAND (SM); reddish brown		29-30		1.0		28
		35.00					
	SILTY SAND (SM); light brown		39-40		1.0		28
			49-50		1.0		<28
			59-60		1.0		<28
			69-70		1.0		<28
			79-80		1.0		<28
			89-90		1.0		<28
	END OF BOREHOLE @ 90.0ft BGS	90.00					

NOTES:

LABORATORY ANALYSIS

OVERBURDEN LOG 073817-CVX LPU60.GPJ CRA_CORP.GDT 15/2/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 60
PROJECT NUMBER: 73817
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
HCl

HOLE DESIGNATION: SB-8
DATE COMPLETED: 23 October 2017
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Rebecca Jones

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	CHLORIDES (mg/kg)
0	TOP SOIL	1.00					
	CALICHE; dark brown		4-5		1.0		210
	SILTY SAND (SM); light brown, contains caliche	7.50	9-10		1.0		354
			19-20		1.0		>651
			29-30		1.0		>651
	SILTY SAND (SM); light brown	35.00	39-40		1.0		>651
	SILTY SAND (SM); light brown, contains caliche	45.00	49-50		1.0		>651
	SILTY SAND (SM); light brown	55.00	59-60		1.0		>651
	SILTY SAND (SM); light brown, contains caliche	65.00	69-70		1.0		443
	SILTY SAND (SM); light brown	75.00	79-80		1.0		210
			89-90		1.0		244
			99-100		1.0		141
	END OF BOREHOLE @ 100.0ft BGS						

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 073817-CVX LPU60.GPJ CRA_CORP.GDT 15/2/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 60
PROJECT NUMBER: 73817
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
HCl

HOLE DESIGNATION: SB-9
DATE COMPLETED: 24 October 2017
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Rebecca Jones

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	CHLORIDES (mg/kg)
	TOP SOIL	1.00					
	CALICHE; light brown		4-5		1.0		52
	SILTY SAND (SM); light brown, contains caliche	7.50	9-10		1.0		119
	SILTY SAND (SM); light brown	15.00	19-20		1.0		119
			29-30		1.0		130
			39-40		1.0		141
			49-50		1.0		52
			59-60		1.0		52
			69-70		1.0		52
	SILTY SAND (SM); light brown, contains caliche	75.00	79-80		1.0		52
	SILTY SAND (SM); light brown	85.00					
	END OF BOREHOLE @ 90.0ft BGS	90.00	89-90		1.0		46

NOTES:

LABORATORY ANALYSIS

OVERBURDEN LOG 073817-CVX LPU60.GPJ CRA_CORP.GDT 15/2/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 60
PROJECT NUMBER: 73817
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
HCl

HOLE DESIGNATION: SB-10
DATE COMPLETED: 23 October 2017
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Rebecca Jones

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	CHLORIDES (mg/kg)
0	TOP SOIL	1.00					
	CALICHE; light brown		4-5		1.0		141
		7.50					
	SILTY SAND (SM); light brown, contains caliche		9-10		1.0		141
			19-20		1.0		52
		25.00					
	SILTY SAND (SM); reddish brown, contains caliche		29-30		1.0		<28
		35.00					
	SILTY SAND (SM); light brown		39-40		1.0		<28
			49-50		1.0		<28
			59-60		1.0		<28
			69-70		1.0		<28
			79-80		1.0		<28
		90.00	89-90		1.0		<28
	END OF BOREHOLE @ 90.0ft BGS						

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 073817-CVX LPU60.GPJ CRA_CORP.GDT 15/2/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 60
PROJECT NUMBER: 73817
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
HCl

HOLE DESIGNATION: SB-11
DATE COMPLETED: 24 October 2017
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Rebecca Jones

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	CHLORIDES (mg/kg)
	TOP SOIL	1.00					
	CALICHE; light brown		4-5		1.0		166
	SILTY SAND (SM); light brown, contains caliche	7.50	9-10		1.0		141
	SILTY SAND (SM); light brown	15.00	19-20		1.0		0
			29-30		1.0		166
			39-40		1.0		141
			49-50		1.0		141
			59-60		1.0		130
			69-70		1.0		74
			79-80		1.0		74
	END OF BOREHOLE @ 90.0ft BGS	90.00	89-90		1.0		82

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 073817-CVX LPU60.GPJ CRA_CORP.GDT 15/2/18

Appendix B
Certified Analytical Reports

Certificate of Analysis Summary 554083

GHD Services, INC- Midland, Midland, TX

Project Name: CEMCLPU-60

Project Id: 073817
Contact: William Foord
Project Location: Lovington NM

Date Received in Lab: Fri May-26-17 01:35 pm
Report Date: 02-JUN-17
Project Manager: Kelsey Brooks

Analysis Requested								
	Lab Id:	554083-001						
	Field Id:	LPU-60-W-170526						
	Depth:							
	Matrix:	GROUND WATER						
	Sampled:	May-26-17 10:30						
Chloride by EPA 300	***Extracted:***	May-26-17 16:06						
	Analyzed:	May-27-17 00:58						
	Units/RL:	mg/L	RL					
Chloride		83.9	2.50					
TDS by SM2540C	***Extracted:***							
	Analyzed:	May-30-17 09:00						
	Units/RL:	mg/L	RL					
Total Dissolved Solids		432	5.00					

Kelsey Brooks
Project Manager

Final 1.000

Analytical Report 554083

for

GHD Services, INC- Midland

Project Manager: William Foord

CEMCLPU-60

073817

02-JUN-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

02-JUN-17

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

Reference: XENCO Report No(s): **554083**
CEMCLPU-60
Project Address: Lovington NM

William 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) 554083. 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. 554083 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 554083

GHD Services, INC- Midland, Midland, TX

CEMCLPU-60

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
LPU-60-W-170526	W	05-26-17 10:30		554083-001

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results 554083

GHD Services, INC- Midland, Midland, TX

CEMCLPU-60

Sample Id: **LPU-60-W-170526** Matrix: Ground Water Date Received:05.26.17 13.35

Lab Sample Id: 554083-001 Date Collected: 05.26.17 10.30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: MGO % Moisture:

Analyst: MGO Date Prep: 05.26.17 16.06

Seq Number: 3018407

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**83.9**	2.50	mg/L	05.27.17 00.58		5

Analytical Method: TDS by SM2540C

Tech: MAN % Moisture:

Analyst: MAN

Seq Number: 3018598

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Dissolved Solids	TDS	**432**	5.00	mg/L	05.30.17 09.00		1

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

	Phone	Fax
4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

QC Summary 554083

GHD Services, INC- Midland

CEMCLPU-60

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3018407 Matrix: Water Date Prep: 05.26.17
MB Sample Id: 725283-1-BLK LCS Sample Id: 725283-1-BKS LCSD Sample Id: 725283-1-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	26.5	106	26.4	106	90-110	0	20	mg/L	05.27.17 00:20	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3018407 Matrix: Ground Water Date Prep: 05.26.17
Parent Sample Id: 554082-001 MS Sample Id: 554082-001 S MSD Sample Id: 554082-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	144	125	280	109	277	106	90-110	1	20	mg/L	05.27.17 00:43	

Analytical Method: **TDS by SM2540C**
Seq Number: 3018598 Matrix: Water
MB Sample Id: 3018598-1-BLK LCS Sample Id: 3018598-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Total Dissolved Solids	<5.00	1000	977	98	80-120	mg/L	05.30.17 09:00	

Analytical Method: **TDS by SM2540C**
Seq Number: 3018598 Matrix: Ground Water
Parent Sample Id: 554084-001 MD Sample Id: 554084-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	3370	3290	2	10	mg/L	05.30.17 09:00	

Analytical Method: **TDS by SM2540C**
Seq Number: 3018598 Matrix: Ground Water
Parent Sample Id: 554084-011 MD Sample Id: 554084-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Total Dissolved Solids	892	840	6	10	mg/L	05.30.17 09:00	

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

Setting the Standard since 1990

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

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

Xenco Quote #:
Xenco Job #: 554083

Client / Reporting Information

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

Project Information

Project Name/Number: CEMCLPU-60/073817
Project Location: Lovington, NM
Invoice To:
PO Number:

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	Analytical Information: BTEX	TPH-GRO	TPH-DRO	TDS	Chloride	Moisture	Field Comments
1	LPU-60-W-170526		5-26-17	1050	G	2								X				X	X		
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

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

Temp: 2.7 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 2.0

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		5-26-17 1535	1	2		2
3	Relinquished by:	Date Time:	Received By: 3	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. 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: 05/26/2017 01:35:00 PM

Work Order #: 554083

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
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**N/A**
#21 VOC samples have zero headspace?	**N/A**

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

Analyst: JKR

PH Device/Lot#: 213315

Checklist completed by: Jessica Kramer
Jessica Kramer
Date: 05/26/2017

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 05/26/2017

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-001		566503-002		566503-003		566503-004		566503-005		566503-006	
	Field Id:	DUP_1-171023		SB-10-S-0.5-1-171023		SB-10-S-4-5-171023		SB-10-S-9-10-171023		SB-10-S-19-20--171023		SB-10-S-29-30-171023	
	Depth:	0-0		.5-1		4-5		9-10		19-20		29-30	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-23-17 00:00		Oct-23-17 10:30		Oct-23-17 10:33		Oct-23-17 10:36		Oct-23-17 10:39		Oct-23-17 10:42	
Chloride by EPA 300	***Extracted:***	Nov-02-17 11:00		Nov-02-17 11:00		Nov-02-17 11:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-10-17 09:00	
	Analyzed:	Nov-02-17 16:44		Nov-02-17 16:53		Nov-02-17 17:02		Nov-03-17 01:35		Nov-03-17 02:02		Nov-10-17 12:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		142	5.24	1190	26.3	703	5.20	673	5.34	154	5.23	50.2	5.27
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Nov-10-17 17:04	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		5.10	1.00	6.79	1.00	4.41	1.00	6.86	1.00	5.08	1.00	5.25	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-013		566503-014		566503-015		566503-016		566503-017		566503-018	
	Field Id:	SB-8-S-0.5-1-171023		SB-8-S-4-5-171023		SB-8-S-9-10-171023		SB-8-S-19-20-171023		SB-8-S-29-30-171023		SB-8-S-39-40-171023	
	Depth:	0.5-1		4-5		9-10		19-20		29-30		39-40	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-23-17 11:20		Oct-23-17 11:23		Oct-23-17 11:26		Oct-23-17 11:29		Oct-23-17 11:32		Oct-23-17 11:35	
Chloride by EPA 300	***Extracted:***	Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00	
	Analyzed:	Nov-03-17 02:11		Nov-03-17 02:19		Nov-03-17 02:28		Nov-03-17 02:55		Nov-03-17 03:04		Nov-03-17 03:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		49.2	5.35	1070	27.1	1380	26.6	2290	25.4	5270	51.8	5570	51.9
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		8.38	1.00	9.35	1.00	6.56	1.00	3.53	1.00	4.34	1.00	5.42	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-019		566503-020		566503-021		566503-022		566503-023		566503-024	
	Field Id:	SB-8-S-49-50-171023		SB-8-S-59-60-171023		SB-8-S-69-70-171023		SB-8-S-79-80-171023		SB-8-S-89-90-171023		SB-8-S-99-100-171023	
	Depth:	49-50		59-60		69-70		79-80		89-90		99-100	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-23-17 11:38		Oct-23-17 11:41		Oct-23-17 11:44		Oct-23-17 11:47		Oct-23-17 11:50		Oct-23-17 11:53	
Chloride by EPA 300	***Extracted:***	Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-10-17 09:00	
	Analyzed:	Nov-03-17 03:21		Nov-03-17 08:49		Nov-03-17 09:25		Nov-03-17 08:58		Nov-03-17 09:33		Nov-10-17 12:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		3760	25.7	3010	26.1	2000	26.4	854	5.19	1010	5.19	1920	25.9
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Nov-10-17 17:04	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		4.63	1.00	4.28	1.00	5.62	1.00	5.11	1.00	5.47	1.00	3.56	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-025		566503-026		566503-027		566503-028		566503-036		566503-037	
	Field Id:	SB-7-S-0.5-1-171023		SB-7-S-4-5-171023		SB-7-S-9-10-171023		SB-7-S-19-20-171023		SB-6-S-0.5-1-171023		SB-6-S-4-5-171023	
	Depth:	0.5-1		4-5		9-10		19-20		0.5-5		4-5	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-23-17 12:53		Oct-23-17 12:56		Oct-23-17 12:59		Oct-23-17 13:02		Oct-23-17 13:50		Oct-23-17 13:53	
Chloride by EPA 300	***Extracted:***	Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00		Nov-02-17 18:00	
	Analyzed:	Nov-03-17 10:00		Nov-03-17 10:09		Nov-03-17 10:18		Nov-03-17 10:26		Nov-03-17 10:35		Nov-03-17 10:44	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		30.5	5.50	30.3	5.32	167	5.18	208	5.18	155	33.1	48.0	5.40
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		9.80	1.00	6.39	1.00	4.49	1.00	5.03	1.00	26.1	1.00	7.56	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-038		566503-039		566503-040		566503-041		566503-042		566503-043	
	Field Id:	SB-6-S-9-10-171023		SB-6-S-19-20-171023		SB-6-S-29-30-171023		SB-6-S-39-40-171023		SB-6-S-49-50-171023		SB-6-S-59-60-171023	
	Depth:	9-10		19-20		29-30		39-40		49-50		59-60	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-23-17 13:56		Oct-23-17 13:59		Oct-23-17 14:02		Oct-23-17 14:05		Oct-23-17 14:08		Oct-23-17 14:11	
Chloride by EPA 300	***Extracted:***	Nov-02-17 18:00		Nov-03-17 18:40		Nov-03-17 18:40		Nov-03-17 18:40		Nov-03-17 18:40		Nov-03-17 18:40	
	Analyzed:	Nov-03-17 10:53		Nov-04-17 06:56		Nov-04-17 07:05		Nov-04-17 07:14		Nov-04-17 07:40		Nov-04-17 07:49	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		138	5.37	66.7	5.19	189	5.22	766	5.22	1300	5.23	1300	5.24
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		7.18	1.00	4.28	1.00	4.96	1.00	4.89	1.00	4.53	1.00	4.64	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-044		566503-045		566503-046		566503-047		566503-048		566503-049	
	Field Id:	SB-6-S-69-70-171023		SB-6-S-79-80-171023		SB-6-S-89-90-171023		SB-6-S-99-100-171023		SB-9-S-0.5-1-171023		SB-9-S-4-5-171023	
	Depth:	69-70		79-80		89-90		99-100		0.5-1		4-5	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-23-17 14:14		Oct-23-17 14:17		Oct-23-17 14:20		Oct-23-17 14:53		Oct-24-17 08:20		Oct-24-17 08:23	
Chloride by EPA 300	***Extracted:***	Nov-03-17 18:40		Nov-03-17 18:40		Nov-03-17 18:40		Nov-03-17 18:40		Nov-03-17 18:40		Nov-03-17 18:40	
	Analyzed:	Nov-04-17 09:23		Nov-04-17 09:32		Nov-04-17 09:41		Nov-04-17 10:57		Nov-04-17 11:06		Nov-04-17 11:15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1220	5.37	873	5.30	622	5.23	168	5.29	36.8	6.05	131	5.97
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00		Oct-26-17 14:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		7.04	1.00	6.40	1.00	5.28	1.00	5.80	1.00	17.6	1.00	17.7	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-050		566503-051		566503-052		566503-053		566503-054		566503-055	
	Field Id:	SB-9-S-9-10-171023		SB-9-S-19-20-171023		SB-9-S-29-30-171023		SB-9-S-39-40-171023		SB-9-S-49-50-171023		SB-9-S-59-60-171023	
	Depth:	9-10		19-20		29-30		39-40		49-50		59-60	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-24-17 08:26		Oct-24-17 08:29		Oct-24-17 08:32		Oct-24-17 08:35		Oct-24-17 08:38		Oct-24-17 08:41	
Chloride by EPA 300	***Extracted:***	Nov-03-17 18:40		Nov-04-17 08:50		Nov-10-17 09:00		Nov-10-17 09:00		Dec-07-17 12:30		Dec-07-17 12:30	
	Analyzed:	Nov-04-17 11:24		Nov-04-17 13:38		Nov-10-17 12:36		Nov-10-17 12:42		Dec-07-17 13:14		Dec-07-17 13:31	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		409	5.49	352	5.73	360	5.39	308	5.24	178	5.56	119	5.24
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-26-17 14:00		Oct-27-17 10:00		Nov-10-17 17:04		Nov-10-17 17:04		Dec-07-17 09:15		Dec-07-17 09:15	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		9.03	1.00	12.9	1.00	7.40	1.00	6.07	1.00	10.4	1.00	5.50	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-056		566503-057		566503-058		566503-059		566503-060		566503-061	
	Field Id:	SB-9-S-69-70-171023		SB-9-S-79-80-171023		SB-9-S-89-90-171023		SB-11-S-0.5-1-171023		SB-11-S-4-5-171023		SB-11-S-9-10-171023	
	Depth:	69-70		79-80		89-90		0.5-1		4-5		9-10	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-24-17 08:44		Oct-24-17 08:47		Oct-24-17 08:50		Oct-24-17 09:20		Oct-24-17 09:23		Oct-24-17 09:26	
Chloride by EPA 300	***Extracted:***	Dec-08-17 09:00		Dec-08-17 09:00		Dec-08-17 09:00		Nov-04-17 08:50		Nov-04-17 08:50		Nov-04-17 08:50	
	Analyzed:	Dec-08-17 13:33		Dec-08-17 13:39		Dec-08-17 13:45		Nov-04-17 13:44		Nov-04-17 14:03		Nov-04-17 14:10	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		163	5.35	200	9.73	129	5.28	6.90	5.84	1040	27.8	673	5.58
Percent Moisture	***Extracted:***												
	Analyzed:	Dec-08-17 08:30		Dec-08-17 08:30		Dec-08-17 08:30		Oct-27-17 10:00		Oct-27-17 10:00		Oct-27-17 10:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		7.06	1.00	48.9	1.00	5.62	1.00	16.1	1.00	10.9	1.00	10.8	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566503-062		566503-063		566503-064		566503-065		566503-066		566503-067	
	Field Id:	SB-11-S-19-20-171023		SB-11-S-29-30-171023		SB-11-S-39-40-171023		SB-11-S-49-50-171023		SB-11-S-59-60-171023		SB-11-S-69-70-171023	
	Depth:	19-20		29-30		39-40		49-50		59-60		69-70	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-24-17 09:29		Oct-24-17 09:32		Oct-24-17 09:35		Oct-24-17 09:38		Oct-24-17 09:41		Oct-24-17 09:44	
Chloride by EPA 300	***Extracted:***	Nov-04-17 08:50		Nov-04-17 08:50		Nov-04-17 08:50		Nov-04-17 08:50		Nov-03-17 18:40		Nov-03-17 18:40	
	Analyzed:	Nov-04-17 14:29		Nov-04-17 14:35		Nov-04-17 14:41		Nov-04-17 14:48		Nov-04-17 05:10		Nov-04-17 06:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		336	5.24	530	5.35	496	5.26	477	5.23	398	5.21	283	5.32
Percent Moisture	***Extracted:***												
	Analyzed:	Oct-27-17 10:00		Oct-27-17 10:00		Oct-27-17 10:00		Oct-27-17 10:00		Oct-27-17 10:00		Oct-27-17 10:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		4.50	1.00	6.47	1.00	5.71	1.00	5.42	1.00	4.50	1.00	6.84	1.00

Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 566503

GHD Services, INC- Midland, Midland, TX

Project Name: LPU # 60

Project Id: 073817
Contact: Scott Foord
Project Location: Lovington,NM

Date Received in Lab: Wed Oct-25-17 12:50 pm
Report Date: 09-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	566503-068		566503-069					
	Field Id:	SB-11-S-79-80-171023		SB-11-S-89-90-171023					
	Depth:	79-80		89-90					
	Matrix:	SOIL		SOIL					
	Sampled:	Oct-24-17 09:47		Oct-24-17 09:50					
Chloride by EPA 300	***Extracted:***	Nov-03-17 18:40		Nov-03-17 18:40					
	Analyzed:	Nov-04-17 06:39		Nov-04-17 06:47					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		223	5.37	352	5.96				
Percent Moisture	***Extracted:***								
	Analyzed:	Oct-27-17 10:00		Oct-27-17 10:00					
	Units/RL:	%	RL	%	RL				
Percent Moisture		8.03	1.00	17.1	1.00				

Mike Kimmel
Client Services Manager

Analytical Report 566503

for

GHD Services, INC- Midland

Project Manager: Scott Foord

LPU # 60

073817

09-DEC-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

09-DEC-17

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

Reference: XENCO Report No(s): **566503**
LPU # 60
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) 566503. 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. 566503 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,

Mike Kimmel
Client Services Manager

Sample Cross Reference 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
DUP_1-171023	S	10-23-17 00:00	0 - 0	566503-001
SB-10-S-0.5-1-171023	S	10-23-17 10:30	.5 - 1	566503-002
SB-10-S-4-5-171023	S	10-23-17 10:33	4 - 5	566503-003
SB-10-S-9-10-171023	S	10-23-17 10:36	9 - 10	566503-004
SB-10-S-19-20--171023	S	10-23-17 10:39	19 - 20	566503-005
SB-10-S-29-30-171023	S	10-23-17 10:42	29 - 30	566503-006
SB-8-S-0.5-1-171023	S	10-23-17 11:20	0.5 - 1	566503-013
SB-8-S-4-5-171023	S	10-23-17 11:23	4 - 5	566503-014
SB-8-S-9-10-171023	S	10-23-17 11:26	9 - 10	566503-015
SB-8-S-19-20-171023	S	10-23-17 11:29	19 - 20	566503-016
SB-8-S-29-30-171023	S	10-23-17 11:32	29 - 30	566503-017
SB-8-S-39-40-171023	S	10-23-17 11:35	39 - 40	566503-018
SB-8-S-49-50-171023	S	10-23-17 11:38	49 - 50	566503-019
SB-8-S-59-60-171023	S	10-23-17 11:41	59 - 60	566503-020
SB-8-S-69-70-171023	S	10-23-17 11:44	69 - 70	566503-021
SB-8-S-79-80-171023	S	10-23-17 11:47	79 - 80	566503-022
SB-8-S-89-90-171023	S	10-23-17 11:50	89 - 90	566503-023
SB-8-S-99-100-171023	S	10-23-17 11:53	99 - 100	566503-024
SB-7-S-0.5-1-171023	S	10-23-17 12:53	0.5 - 1	566503-025
SB-7-S-4-5-171023	S	10-23-17 12:56	4 - 5	566503-026
SB-7-S-9-10-171023	S	10-23-17 12:59	9 - 10	566503-027
SB-7-S-19-20-171023	S	10-23-17 13:02	19 - 20	566503-028
SB-6-S-0.5-1-171023	S	10-23-17 13:50	0.5 - 5	566503-036
SB-6-S-4-5-171023	S	10-23-17 13:53	4 - 5	566503-037
SB-6-S-9-10-171023	S	10-23-17 13:56	9 - 10	566503-038
SB-6-S-19-20-171023	S	10-23-17 13:59	19 - 20	566503-039
SB-6-S-29-30-171023	S	10-23-17 14:02	29 - 30	566503-040
SB-6-S-39-40-171023	S	10-23-17 14:05	39 - 40	566503-041
SB-6-S-49-50-171023	S	10-23-17 14:08	49 - 50	566503-042
SB-6-S-59-60-171023	S	10-23-17 14:11	59 - 60	566503-043
SB-6-S-69-70-171023	S	10-23-17 14:14	69 - 70	566503-044
SB-6-S-79-80-171023	S	10-23-17 14:17	79 - 80	566503-045
SB-6-S-89-90-171023	S	10-23-17 14:20	89 - 90	566503-046
SB-6-S-99-100-171023	S	10-23-17 14:53	99 - 100	566503-047
SB-9-S-0.5-1-171023	S	10-24-17 08:20	0.5 - 1	566503-048
SB-9-S-4-5-171023	S	10-24-17 08:23	4 - 5	566503-049
SB-9-S-9-10-171023	S	10-24-17 08:26	9 - 10	566503-050
SB-9-S-19-20-171023	S	10-24-17 08:29	19 - 20	566503-051
SB-9-S-29-30-171023	S	10-24-17 08:32	29 - 30	566503-052
SB-9-S-39-40-171023	S	10-24-17 08:35	39 - 40	566503-053
SB-9-S-49-50-171023	S	10-24-17 08:38	49 - 50	566503-054
SB-9-S-59-60-171023	S	10-24-17 08:41	59 - 60	566503-055
SB-9-S-69-70-171023	S	10-24-17 08:44	69 - 70	566503-056

SB-9-S-79-80-171023	S	10-24-17 08:47	79 - 80	566503-057
SB-9-S-89-90-171023	S	10-24-17 08:50	89 - 90	566503-058
SB-11-S-0.5-1-171023	S	10-24-17 09:20	0.5 - 1	566503-059
SB-11-S-4-5-171023	S	10-24-17 09:23	4 - 5	566503-060
SB-11-S-9-10-171023	S	10-24-17 09:26	9 - 10	566503-061
SB-11-S-19-20-171023	S	10-24-17 09:29	19 - 20	566503-062
SB-11-S-29-30-171023	S	10-24-17 09:32	29 - 30	566503-063
SB-11-S-39-40-171023	S	10-24-17 09:35	39 - 40	566503-064
SB-11-S-49-50-171023	S	10-24-17 09:38	49 - 50	566503-065
SB-11-S-59-60-171023	S	10-24-17 09:41	59 - 60	566503-066
SB-11-S-69-70-171023	S	10-24-17 09:44	69 - 70	566503-067
SB-11-S-79-80-171023	S	10-24-17 09:47	79 - 80	566503-068
SB-11-S-89-90-171023	S	10-24-17 09:50	89 - 90	566503-069
SB-10-S-39-40-171023	S	10-23-17 10:45	39 - 40	Not Analyzed
SB-10-S-49-50-171023	S	10-23-17 10:48	49 - 50	Not Analyzed
SB-10-S-59-60-171023	S	10-23-17 10:51	59 - 60	Not Analyzed
SB-10-S-69-70-171023	S	10-23-17 10:54	69 - 70	Not Analyzed
SB-10-S-79-80-171023	S	10-23-17 10:57	79 - 80	Not Analyzed
SB-10-S-89-90-171023	S	10-23-17 11:00	89 - 90	Not Analyzed
SB-7-S-29-30-171023	S	10-23-17 13:05	29 - 30	Not Analyzed
SB-7-S-39-40-171023	S	10-23-17 13:08	39 - 40	Not Analyzed
SB-7-S-49-50-171023	S	10-23-17 13:11	49 - 50	Not Analyzed
SB-7-S-59-60-171023	S	10-23-17 13:14	59 - 60	Not Analyzed
SB-7-S-69-70-171023	S	10-23-17 13:17	69 - 70	Not Analyzed
SB-7-S-79-80-171023	S	10-23-17 13:20	79 - 80	Not Analyzed
SB-7-S-89-90-171023	S	10-23-17 13:23	89 - 90	Not Analyzed
Temp Blank	S	10-24-17 00:00		Not Analyzed

Sample receipt non conformances and comments:

11/10/17: Per Scott Foord, add Chloride analysis for SB-10(29-30)/SB-8(99-100)/SB-9 (29-30)/SB-9(39-40)
12/07/17: Run all remaining sampling points of SB-9 that were previously on hold for Chloride

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**DUP_1-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-001	Date Collected:	10.23.17 00.00	Sample Depth:	0 - 0
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.1
Analyst:	MNV	Date Prep:	11.02.17 11.00	Basis:	Dry Weight
Seq Number:	3032225				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**142**	5.24	mg/kg	11.02.17 16.44		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-10-S-0.5-1-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-002	Date Collected:	10.23.17 10.30	Sample Depth:	.5 - 1
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.79
Analyst:	MNV	Date Prep:	11.02.17 11.00	Basis:	Dry Weight
Seq Number:	3032225				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1190**	26.3	mg/kg	11.02.17 16.53		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-10-S-4-5-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-003	Date Collected:	10.23.17 10.33	Sample Depth:	4 - 5
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.41
Analyst:	MNV	Date Prep:	11.02.17 11.00	Basis:	Dry Weight
Seq Number:	3032225				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**703**	5.20	mg/kg	11.02.17 17.02		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-10-S-9-10-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-004	Date Collected:	10.23.17 10.36	Sample Depth:	9 - 10
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.86
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**673**	5.34	mg/kg	11.03.17 01.35		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-10-S-19-20--171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-005	Date Collected:	10.23.17 10.39	Sample Depth:	19 - 20
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.08
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**154**	5.23	mg/kg	11.03.17 02.02		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-10-S-29-30-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-006	Date Collected:	10.23.17 10.42	Sample Depth:	29 - 30
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.25
Analyst:	MNV	Date Prep:	11.10.17 09.00	Basis:	Dry Weight
Seq Number:	3032985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**50.2**	5.27	mg/kg	11.10.17 12.23		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-0.5-1-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-013	Date Collected:	10.23.17 11.20	Sample Depth:	0.5 - 1
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	8.38
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**49.2**	5.35	mg/kg	11.03.17 02.11		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-4-5-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-014	Date Collected:	10.23.17 11.23	Sample Depth:	4 - 5
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	9.35
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1070**	27.1	mg/kg	11.03.17 02.19		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-9-10-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-015	Date Collected:	10.23.17 11.26	Sample Depth:	9 - 10
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.56
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1380**	26.6	mg/kg	11.03.17 02.28		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-19-20-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-016	Date Collected:	10.23.17 11.29	Sample Depth:	19 - 20
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	3.53
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2290**	25.4	mg/kg	11.03.17 02.55		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-29-30-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-017	Date Collected:	10.23.17 11.32	Sample Depth:	29 - 30
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.34
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5270**	51.8	mg/kg	11.03.17 03.04		10

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-39-40-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-018	Date Collected:	10.23.17 11.35	Sample Depth:	39 - 40
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.42
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5570**	51.9	mg/kg	11.03.17 03.13		10

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-49-50-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-019	Date Collected:	10.23.17 11.38	Sample Depth:	49 - 50
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.63
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3760**	25.7	mg/kg	11.03.17 03.21		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-59-60-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-020	Date Collected:	10.23.17 11.41	Sample Depth:	59 - 60
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.28
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3010**	26.1	mg/kg	11.03.17 08.49		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-69-70-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-021	Date Collected:	10.23.17 11.44	Sample Depth:	69 - 70
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.62
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2000**	26.4	mg/kg	11.03.17 09.25		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-79-80-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-022	Date Collected:	10.23.17 11.47	Sample Depth:	79 - 80
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.11
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**854**	5.19	mg/kg	11.03.17 08.58		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-89-90-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-023	Date Collected:	10.23.17 11.50	Sample Depth:	89 - 90
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.47
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1010**	5.19	mg/kg	11.03.17 09.33		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-8-S-99-100-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-024	Date Collected:	10.23.17 11.53	Sample Depth:	99 - 100
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	3.56
Analyst:	MNV	Date Prep:	11.10.17 09.00	Basis:	Dry Weight
Seq Number:	3032985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1920**	25.9	mg/kg	11.10.17 12.30		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-7-S-0.5-1-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-025	Date Collected:	10.23.17 12.53	Sample Depth:	0.5 - 1
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	9.8
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**30.5**	5.50	mg/kg	11.03.17 10.00		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-7-S-4-5-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-026	Date Collected:	10.23.17 12.56	Sample Depth:	4 - 5
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.39
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**30.3**	5.32	mg/kg	11.03.17 10.09		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-7-S-9-10-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-027	Date Collected:	10.23.17 12.59	Sample Depth:	9 - 10
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.49
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**167**	5.18	mg/kg	11.03.17 10.18		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-7-S-19-20-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-028	Date Collected:	10.23.17 13.02	Sample Depth:	19 - 20
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.03
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**208**	5.18	mg/kg	11.03.17 10.26		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-0.5-1-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-036	Date Collected:	10.23.17 13.50	Sample Depth:	0.5 - 5
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	26.05
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**155**	33.1	mg/kg	11.03.17 10.35		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-4-5-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-037	Date Collected:	10.23.17 13.53	Sample Depth:	4 - 5
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	7.56
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**48.0**	5.40	mg/kg	11.03.17 10.44		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-9-10-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-038	Date Collected:	10.23.17 13.56	Sample Depth:	9 - 10
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	7.18
Analyst:	MNV	Date Prep:	11.02.17 18.00	Basis:	Dry Weight
Seq Number:	3032348				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**138**	5.37	mg/kg	11.03.17 10.53		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-19-20-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-039	Date Collected:	10.23.17 13.59	Sample Depth:	19 - 20
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.28
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**66.7**	5.19	mg/kg	11.04.17 06.56		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-29-30-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-040	Date Collected:	10.23.17 14.02	Sample Depth:	29 - 30
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.96
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**189**	5.22	mg/kg	11.04.17 07.05		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-39-40-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-041	Date Collected:	10.23.17 14.05	Sample Depth:	39 - 40
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.89
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**766**	5.22	mg/kg	11.04.17 07.14		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-49-50-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-042	Date Collected:	10.23.17 14.08	Sample Depth:	49 - 50
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.53
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1300**	5.23	mg/kg	11.04.17 07.40		1

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GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-59-60-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-043	Date Collected:	10.23.17 14.11	Sample Depth:	59 - 60
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.64
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1300**	5.24	mg/kg	11.04.17 07.49		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-69-70-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-044	Date Collected:	10.23.17 14.14	Sample Depth:	69 - 70
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	7.04
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1220**	5.37	mg/kg	11.04.17 09.23		1

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GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-79-80-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-045	Date Collected:	10.23.17 14.17	Sample Depth:	79 - 80
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.4
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**873**	5.30	mg/kg	11.04.17 09.32		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-89-90-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-046	Date Collected:	10.23.17 14.20	Sample Depth:	89 - 90
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.28
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**622**	5.23	mg/kg	11.04.17 09.41		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-6-S-99-100-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-047	Date Collected:	10.23.17 14.53	Sample Depth:	99 - 100
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.8
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**168**	5.29	mg/kg	11.04.17 10.57		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-0.5-1-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-048	Date Collected:	10.24.17 08.20	Sample Depth:	0.5 - 1
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	17.64
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**36.8**	6.05	mg/kg	11.04.17 11.06		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-4-5-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-049	Date Collected:	10.24.17 08.23	Sample Depth:	4 - 5
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	17.72
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**131**	5.97	mg/kg	11.04.17 11.15		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-9-10-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-050	Date Collected:	10.24.17 08.26	Sample Depth:	9 - 10
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	9.03
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**409**	5.49	mg/kg	11.04.17 11.24		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-19-20-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-051	Date Collected:	10.24.17 08.29	Sample Depth:	19 - 20
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	12.9
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**352**	5.73	mg/kg	11.04.17 13.38		1

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GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-29-30-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-052	Date Collected:	10.24.17 08.32	Sample Depth:	29 - 30
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	7.4
Analyst:	MNV	Date Prep:	11.10.17 09.00	Basis:	Dry Weight
Seq Number:	3032985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**360**	5.39	mg/kg	11.10.17 12.36		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-39-40-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-053	Date Collected:	10.24.17 08.35	Sample Depth:	39 - 40
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.07
Analyst:	MNV	Date Prep:	11.10.17 09.00	Basis:	Dry Weight
Seq Number:	3032985				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**308**	5.24	mg/kg	11.10.17 12.42		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-49-50-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-054	Date Collected:	10.24.17 08.38	Sample Depth:	49 - 50
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	10.38
Analyst:	MNV	Date Prep:	12.07.17 12.30	Basis:	Dry Weight
Seq Number:	3035238				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**178**	5.56	mg/kg	12.07.17 13.14		1

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GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-59-60-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-055	Date Collected:	10.24.17 08.41	Sample Depth:	59 - 60
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.5
Analyst:	MNV	Date Prep:	12.07.17 12.30	Basis:	Dry Weight
Seq Number:	3035238				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**119**	5.24	mg/kg	12.07.17 13.31		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-69-70-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-056	Date Collected:	10.24.17 08.44	Sample Depth:	69 - 70
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	7.06
Analyst:	MNV	Date Prep:	12.08.17 09.00	Basis:	Dry Weight
Seq Number:	3035359				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**163**	5.35	mg/kg	12.08.17 13.33		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-79-80-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-057	Date Collected:	10.24.17 08.47	Sample Depth:	79 - 80
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	48.92
Analyst:	MNV	Date Prep:	12.08.17 09.00	Basis:	Dry Weight
Seq Number:	3035359				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**200**	9.73	mg/kg	12.08.17 13.39		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-9-S-89-90-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-058	Date Collected:	10.24.17 08.50	Sample Depth:	89 - 90
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.62
Analyst:	MNV	Date Prep:	12.08.17 09.00	Basis:	Dry Weight
Seq Number:	3035359				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**129**	5.28	mg/kg	12.08.17 13.45		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-0.5-1-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-059	Date Collected:	10.24.17 09.20	Sample Depth:	0.5 - 1
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	16.11
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.90**	5.84	mg/kg	11.04.17 13.44		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-4-5-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-060	Date Collected:	10.24.17 09.23	Sample Depth:	4 - 5
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	10.88
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1040**	27.8	mg/kg	11.04.17 14.03		5

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-9-10-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-061	Date Collected:	10.24.17 09.26	Sample Depth:	9 - 10
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	10.76
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**673**	5.58	mg/kg	11.04.17 14.10		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-19-20-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-062	Date Collected:	10.24.17 09.29	Sample Depth:	19 - 20
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.5
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**336**	5.24	mg/kg	11.04.17 14.29		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-29-30-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-063	Date Collected:	10.24.17 09.32	Sample Depth:	29 - 30
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.47
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**530**	5.35	mg/kg	11.04.17 14.35		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-39-40-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-064	Date Collected:	10.24.17 09.35	Sample Depth:	39 - 40
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.71
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**496**	5.26	mg/kg	11.04.17 14.41		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-49-50-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-065	Date Collected:	10.24.17 09.38	Sample Depth:	49 - 50
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	5.42
Analyst:	MNV	Date Prep:	11.04.17 08.50	Basis:	Dry Weight
Seq Number:	3032464				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**477**	5.23	mg/kg	11.04.17 14.48		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-59-60-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-066	Date Collected:	10.24.17 09.41	Sample Depth:	59 - 60
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	4.5
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**398**	5.21	mg/kg	11.04.17 05.10		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-69-70-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-067	Date Collected:	10.24.17 09.44	Sample Depth:	69 - 70
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	6.84
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**283**	5.32	mg/kg	11.04.17 06.30		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-79-80-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-068	Date Collected:	10.24.17 09.47	Sample Depth:	79 - 80
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	8.03
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**223**	5.37	mg/kg	11.04.17 06.39		1

Certificate of Analytical Results 566503

GHD Services, INC- Midland, Midland, TX

LPU # 60

Sample Id:	**SB-11-S-89-90-171023**	Matrix:	Soil	Date Received:	10.25.17 12.50
Lab Sample Id:	566503-069	Date Collected:	10.24.17 09.50	Sample Depth:	89 - 90
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MNV			% Moisture:	17.07
Analyst:	MNV	Date Prep:	11.03.17 18.40	Basis:	Dry Weight
Seq Number:	3032480				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**352**	5.96	mg/kg	11.04.17 06.47		1

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032225 Matrix: Solid Date Prep: 11.02.17
MB Sample Id: 7633683-1-BLK LCS Sample Id: 7633683-1-BKS LCSD Sample Id: 7633683-1-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	257	103	257	103	90-110	0	20	mg/kg	11.02.17 12:46	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032348 Matrix: Solid Date Prep: 11.02.17
MB Sample Id: 7633738-1-BLK LCS Sample Id: 7633738-1-BKS LCSD Sample Id: 7633738-1-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	243	97	242	97	90-110	0	20	mg/kg	11.03.17 01:18	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032480 Matrix: Solid Date Prep: 11.03.17
MB Sample Id: 7633802-1-BLK LCS Sample Id: 7633802-1-BKS LCSD Sample Id: 7633802-1-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	252	101	252	101	90-110	0	20	mg/kg	11.04.17 04:52	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032464 Matrix: Solid Date Prep: 11.04.17
MB Sample Id: 7633803-1-BLK LCS Sample Id: 7633803-1-BKS LCSD Sample Id: 7633803-1-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	243	97	249	100	90-110	2	20	mg/kg	11.04.17 12:02	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032985 Matrix: Solid Date Prep: 11.10.17
MB Sample Id: 7634159-1-BLK LCS Sample Id: 7634159-1-BKS LCSD Sample Id: 7634159-1-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	250	100	251	100	90-110	0	20	mg/kg	11.10.17 10:09	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3035238 Matrix: Solid Date Prep: 12.07.17
MB Sample Id: 7635585-1-BLK LCS Sample Id: 7635585-1-BKS LCSD Sample Id: 7635585-1-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	258	103	90-110	1	20	mg/kg	12.07.17 09:29	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3035359 Matrix: Solid Date Prep: 12.08.17
MB Sample Id: 7635634-1-BLK LCS Sample Id: 7635634-1-BKS LCSD Sample Id: 7635634-1-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	246	98	245	98	90-110	0	20	mg/kg	12.08.17 09:04	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032225 Matrix: Soil Date Prep: 11.02.17
Parent Sample Id: 566350-001 MS Sample Id: 566350-001 S MSD Sample Id: 566350-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1230	248	1480	101	1480	101	90-110	0	20	mg/kg	11.02.17 13:12	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032225 Matrix: Soil Date Prep: 11.02.17
Parent Sample Id: 567091-005 MS Sample Id: 567091-005 S MSD Sample Id: 567091-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	26.4	263	257	88	257	88	90-110	0	20	mg/kg	11.02.17 15:16	X

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032348 Matrix: Soil Date Prep: 11.02.17
Parent Sample Id: 566503-004 MS Sample Id: 566503-004 S MSD Sample Id: 566503-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	673	267	937	99	935	98	90-110	0	20	mg/kg	11.03.17 01:44	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032348 Matrix: Soil Date Prep: 11.02.17
Parent Sample Id: 566503-022 MS Sample Id: 566503-022 S MSD Sample Id: 566503-022 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	854	259	1100	95	1100	95	90-110	0	20	mg/kg	11.03.17 09:07	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032480 Matrix: Soil Date Prep: 11.03.17
Parent Sample Id: 566503-041 MS Sample Id: 566503-041 S MSD Sample Id: 566503-041 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	766	261	1020	97	1020	97	90-110	0	20	mg/kg	11.04.17 07:23	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032480 Matrix: Soil Date Prep: 11.03.17
Parent Sample Id: 566503-066 MS Sample Id: 566503-066 S MSD Sample Id: 566503-066 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	398	261	667	103	676	107	90-110	1	20	mg/kg	11.04.17 05:19	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032464 Matrix: Soil Date Prep: 11.04.17
Parent Sample Id: 566503-059 MS Sample Id: 566503-059 S MSD Sample Id: 566503-059 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.90	292	306	102	309	103	90-110	1	20	mg/kg	11.04.17 13:50	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032464 Matrix: Soil Date Prep: 11.04.17
Parent Sample Id: 567440-001 MS Sample Id: 567440-001 S MSD Sample Id: 567440-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.95	248	261	105	260	105	90-110	0	20	mg/kg	11.04.17 12:21	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032985 Matrix: Soil Date Prep: 11.10.17
Parent Sample Id: 567962-001 MS Sample Id: 567962-001 S MSD Sample Id: 567962-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	352	249	591	96	587	94	90-110	1	20	mg/kg	11.10.17 11:32	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3032985 Matrix: Soil Date Prep: 11.10.17
Parent Sample Id: 568052-002 MS Sample Id: 568052-002 S MSD Sample Id: 568052-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7.10	248	265	104	267	105	90-110	1	20	mg/kg	11.10.17 13:02	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3035238 Matrix: Soil Date Prep: 12.07.17
Parent Sample Id: 566199-021 MS Sample Id: 566199-021 S MSD Sample Id: 566199-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	53.4	248	307	102	303	101	90-110	1	20	mg/kg	12.07.17 14:07	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3035238 Matrix: Soil Date Prep: 12.07.17
Parent Sample Id: 569852-001 MS Sample Id: 569852-001 S MSD Sample Id: 569852-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	484	250	730	98	722	95	90-110	1	20	mg/kg	12.07.17 12:44	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3035359 Matrix: Soil Date Prep: 12.08.17
Parent Sample Id: 570435-003 MS Sample Id: 570435-003 S MSD Sample Id: 570435-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	870	249	1090	88	1090	88	90-110	0	20	mg/kg	12.08.17 11:11	X

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3035359 Matrix: Soil Date Prep: 12.08.17
Parent Sample Id: 570435-008 MS Sample Id: 570435-008 S MSD Sample Id: 570435-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	160	249	396	95	402	97	90-110	2	20	mg/kg	12.08.17 12:34	

Analytical Method: **Percent Moisture**
Seq Number: 3031623 Matrix: Solid
MB Sample Id: 3031623-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<1.00	%	10.26.17 14:00	

Analytical Method: **Percent Moisture**
Seq Number: 3031627 Matrix: Solid
MB Sample Id: 3031627-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<1.00	%	10.26.17 14:00	

Analytical Method: **Percent Moisture**
Seq Number: 3031772 Matrix: Solid
MB Sample Id: 3031772-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<1.00	%	10.27.17 10:00	

Analytical Method: **Percent Moisture**
Seq Number: 3033007 Matrix: Solid
MB Sample Id: 3033007-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<1.00	%	11.10.17 17:04	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Percent Moisture**
Seq Number: 3035219 Matrix: Solid
MB Sample Id: 3035219-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<1.00	%	12.07.17 09:15	

Analytical Method: **Percent Moisture**
Seq Number: 3035329 Matrix: Solid
MB Sample Id: 3035329-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<1.00	%	12.08.17 08:30	

Analytical Method: **Percent Moisture**
Seq Number: 3031623 Matrix: Soil
Parent Sample Id: 566503-001 MD Sample Id: 566503-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	5.10	5.04	1	20	%	10.26.17 14:00	

Analytical Method: **Percent Moisture**
Seq Number: 3031623 Matrix: Soil
Parent Sample Id: 566503-025 MD Sample Id: 566503-025 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	9.80	9.34	5	20	%	10.26.17 14:00	

Analytical Method: **Percent Moisture**
Seq Number: 3031627 Matrix: Soil
Parent Sample Id: 566503-026 MD Sample Id: 566503-026 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	6.39	6.20	3	20	%	10.26.17 14:00	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Percent Moisture**
Seq Number: 3031627 Matrix: Soil
Parent Sample Id: 566503-050 MD Sample Id: 566503-050 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	9.03	10.1	11	20	%	10.26.17 14:00	

Analytical Method: **Percent Moisture**
Seq Number: 3031772 Matrix: Soil
Parent Sample Id: 566503-051 MD Sample Id: 566503-051 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	12.9	11.5	11	20	%	10.27.17 10:00	

Analytical Method: **Percent Moisture**
Seq Number: 3031772 Matrix: Soil
Parent Sample Id: 566619-005 MD Sample Id: 566619-005 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	4.79	4.90	2	20	%	10.27.17 10:00	

Analytical Method: **Percent Moisture**
Seq Number: 3033007 Matrix: Soil
Parent Sample Id: 566503-053 MD Sample Id: 566503-053 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	6.07	5.97	2	20	%	11.10.17 17:04	

Analytical Method: **Percent Moisture**
Seq Number: 3033007 Matrix: Soil
Parent Sample Id: 566621-008 MD Sample Id: 566621-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	5.59	5.43	3	20	%	11.10.17 17:04	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

QC Summary 566503

GHD Services, INC- Midland

LPU # 60

Analytical Method: **Percent Moisture**

Seq Number: 3035219 Matrix: Soil

Parent Sample Id: 566199-055 MD Sample Id: 566199-055 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	7.34	7.39	1	20	%	12.07.17 09:15	

Analytical Method: **Percent Moisture**

Seq Number: 3035329 Matrix: Soil

Parent Sample Id: 566199-020 MD Sample Id: 566199-020 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	6.21	5.90	5	20	%	12.08.17 08:30	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

CHAIN OF CUSTODY

Page 1 Of 7

XENCO LABORATORIES

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Stafford,Texas (281-240-4200) | San Antonio, Texas (210-509-3334) | Phoenix, Arizona (480-355-0900)

Dallas Texas (214-902-0300) | Midland, Texas (432-704-5251)

www.xenco.com

Xenco Quote # | Xenco Job # 566503

Client / Reporting Information

Company Name / Branch: GHD / Houston

Company Address: 6330 Rothway St #100 Houston TX 77040

Email: ChrisKnight@ghd.com Phone No: 512-506-8805

Project Contact: Scott Foord

Samplers's Name Rebecca Jones

Project Information

Project Name/Number: LPU #60 / 073817

Project Location: Lovington, NM

Invoice To:

PO Number:

Analytical Information

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
WI = 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	DUP-1-171023	—	10/23	—	S	1								1	X	X	
2	SB-10-S-05-1-171023	05-1		1030		1								1	X	X	
3	SB-10-S-4-5-171023	4-5		1033		1								1	X	X	
4	SB-10-S-9-10-171023	9-10		1036		1								1	X	X	
5	SB-10-S-19-20-171023	19-20		1039		1								1	X	X	
6	SB-10-S-29-30-171023	29-30		1042		1								1	X	X	hold
7	SB-10-S-39-40-171023	39-40		1045		1								1	X	X	Hold
8	SB-10-S-49-50-171023	49-50		1048		1								1	X	X	Hold
9	SB-10-S-59-60-171023	59-60		1051		1								1	X	X	Hold
10	SB-10-S-69-70-171023	69-70	↓	1054	↓	1								1	X	X	Hold

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 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 IV (Full Data Pkg /raw data)
- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Notes:

Temp: 6 IR ID:R-8

CF:(0-6: -0.2°C)

(6-23: +0.2°C)

Corrected Temp: 5.8

FED-EX / UPS: ...

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	[signature]	10/23 0800	1 [signature]	2		2 [signature] 10/25 12:50
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 ☒ Cooler Temp. Thermo. Corr. Factor
			5		☐	

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

CHAIN OF CUSTODY

Page 2 Of 7

XENCO LABORATORIES

Setting the Standard since 1990

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Dallas Texas (214-902-0300)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com

Xenco Quote #
Xenco Job # 560503

Client / Reporting Information

Company Name / Branch: GHD/Houston
Company Address:
Email: Phone No:
Project Contact:
Samplers's Name Rebecca Sones

Project Information

Project Name/Number: LDU #60/073817
Project Location:
Invoice To:
PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chloride	moisture	Field Comments
1	SB-10-S-79-80-171023	79-80	10/23	1057	S	1								1			Hold
2	SB-10-S-89-90-171023	89-90		1100		1								1			Hold
3	SB-8-S-0.5-1-171023	0.5-1		1120		1								1			
4	SB-8-S4-5-171023	4-5		1123		1								1			
5	SB-8-S-9-10-171023	9-10		1126		1								1			
6	SB-8-S-19-20-171023	19-20		1129		1								1			
7	SB-8-S-29-30-171023	29-30		1132		1								1			
8	SB-8-S-39-40-171023	39-40		1135		1								1			
9	SB-8-S-49-50-171023	49-50		1138		1								1			
10	SB-8-S-59-60-171023	59-60	↓	1141	↓	1								1			

Turnaround Time (Business days)

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- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Notes:

Temp: 6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 5.8

FE

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	Rebecca Sones	10/25 0800	1 Xenco	2		2 Courtney 10/25 12:50
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 / Cooler Temp. / Thermo. Corr. Factor
			5		☐	X

CHAIN OF CUSTODY

Page 3 Of 7

XENCO LABORATORIES

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Dallas Texas (214-902-0300) | Midland, Texas (432-704-5251)

www.xenco.com

Xenco Quote # | Xenco Job # 516503

Client / Reporting Information

Company Name / Branch: GHD/Houston

Company Address:

Email: Phone No:

Project Contact:

Samplers's Name Rebecca Jones

Project Information

Project Name/Number: LPU#600/073817

Project Location:

Invoice To:

PO Number:

Analytical Information

Chloride

Moisture

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Field Comments
1	SB-8-S-69-70-171023	69-70	10/23	1144	S	1								1	
2	SB-8-S-79-80-171023	79-80		1147		1								1	
3	SB-8-S-89-90-171023	89-90		1150		1								1	
4	SB-8-S-99-100-171023	99-100		1153		1								1	Hold
5	SB-7-S-0.5-1-171023	0.5-1		1253		1								1	
6	SB-7-S-4-5-171023	4-5		1256		1								1	
7	SB-7-S-9-10-171023	9-10		1259		1								1	
8	SB-7-S-19-20-171023	19-20		1302		1								1	
9	SB-7-S-29-30-171023	29-30		1305		1								1	Hold
10	SB-7-S-39-40-171023	39-40	↓	1308	↓	1								1	Hold

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- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Notes:

Temp: 6 IR ID:R-8

CF:(0-6: -0.2°C)

(6-23: +0.2°C)

Corrected Temp: 5.8

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	Rebecca Jones	10/25 0800	1 XENCO	2		2 Connie Henry 10/25 12:50
3	Relinquished by:	Date Time:	Received By:	4 Relinquished By:	Date Time:	4 Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable ☐	On Ice ☒ Cooler Temp. Thermo. Corr. Factor

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www.xenco.com

Xenco Quote #

Xenco Job # 576503

Client / Reporting Information

Company Name / Branch: GHD/Houston

Company Address:

Email: Phone No:

Project Contact:

Samplers's Name Rebecca Jones

Project Information

Project Name/Number: LPU#60/073817

Project Location:

Invoice To:

PO Number:

Matrix Codes

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

Analytical Information

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	SB-7-S-49-50-171023	49-50	10/23	1311	S	1								1	/	/	Hold
2	SB-7-S-59-60-171023	59-60		1314		1								1	/	/	Hold
3	SB-7-S-69-70-171023	69-70		1317		1								1	/	/	Hold
4	SB-7-S-79-80-171023	79-80		1320		1								1	/	/	Hold
5	SB-7-S-89-90-171023	89-90		1323		1								1	/	/	Hold
6	SB-6-S-0.5-1-171023	05-1		1350		1								1	/	/	
7	SB-6-S-4-5-171023	4-5		1353		1								1	/	/	
8	SB-6-S-9-10-171023	9-10		1356		1								1	/	/	
9	SB-6-S-19-20-171023	19-20		1359		1								1	/	/	
10	SB-6-S-29-30-171023	29-30	↓	1402	↓	1								1	/	/	

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- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Notes:

Temp: 6 IR ID:R-8

CF:(0-6: -0.2°C)

(6-23: +0.2°C)

Corrected Temp: 5.8

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	Rebecca Jones	10/25 0800	Xenco	2		Courier Hand 10/25 12:50
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: X — Cooler Temp. — Thermo. Corr. Factor

CHAIN OF CUSTODY

Page 5 Of 7

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Xenco Quote #
Xenco Job # 576503

Client / Reporting Information

Company Name / Branch: GHD/Houston
Company Address:
Email: Phone No:
Project Contact:
Samplers's Name Rebecca Jones

Project Information

Project Name/Number: LPU #60/073817
Project Location:
Invoice To:
PO Number:

Matrix Codes

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

Analytical Information

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	SB-6-S-39-40-171023	39-40	10/23	1405	S	1								1	/	/	
2	SB-6-S-49-50-171023	49-50		1408		1								1	/	/	
3	SB-6-S-59-60-171023	59-60		1411		1								1	/	/	
4	SB-6-S-69-70-171023	69-70		1414		1								1	/	/	
5	SB-6-S-79-80-171023	79-80		1417		1								1	/	/	
6	SB-6-S-89-90-171023	89-90		1420		1								1	/	/	
7	SB-6-S-99-100-171023	99-100	↓	1423		1								1	/	/	
8	SB-9-S-0.5-1-171024	0.5-1	10/24	0820		1								1	/	/	
9	SB-9-S-4-5-171024	4-5		0823		1								1	/	/	
10	SB-9-S-9-10-171024	9-10	↓	0826	↓	1								1	/	/	

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Temp: 6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 5.8

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	Rebecca Jones	10/25 0800	1 XENCO	2		2 [signature] 10/25 12:50
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 / Cooler Temp. / Thermo. Corr. Factor
			5		☐	☒

XENCO LABORATORIES

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CHAIN OF CUSTODY

Page 6 Of 7

www.xenco.com

Xenco Quote #:
Xenco Job #: 566503

Client / Reporting Information

Company Name / Branch: GHD/Houston
Company Address:
Email:
Phone No:
Project Contact:
Samplers's Name: Rebecca Jones

Project Information

Project Name/Number: LPU #60 / 073817
Project Location:
Invoice To:
PO Number:

Analytical Information: Chloride, moisture

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
WI = Wipe
O = Oil
WW= Waste Water
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No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chloride	moisture	Field Comments
1	SB-9-S-19-20-171024	19-20	10/24	0829	S	1								1	\	\	
2	SB-9-S-29-30-171024	29-30	↓	0832	↓	1								1	\	\	Hold
3	SB-9-S-39-40-171024	39-40	↓	0835	↓	1								1	\	\	Hold
4	SB-9-S-49-50-171024	49-50	↓	0838	↓	1								1	\	\	Hold
5	SB-9-S-59-60-171024	59-60	↓	0841	↓	1								1	\	\	Hold
6	SB-9-S-69-70-171024	69-70	↓	0844	↓	1								1	\	\	Hold
7	SB-9-S-79-80-171024	79-80	↓	0847	↓	1								1	\	\	Hold
8	SB-9-S-89-90-171024	89-90	↓	0850	↓	1								1	\	\	Hold
9	SB-11-S-0.5-1-171024	0.5-1	↓	0920	↓	1								1	\	\	
10	SB-11-S-4-5-171024	4-5	↓	0923	↓	1								1	\	\	

Turnaround Time (Business days)

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Notes:

Temp: 6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 5.8

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

Relinquished by	Date Time	Received By	Relinquished By	Date Time	Received By
Relinquished by Sampler: 1 Rebecca Jones	10/25 0800	1 Xenco	2		2 [signature] 10/25 10:50
3		3	4		4
5		5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

CHAIN OF CUSTODY

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Xenco Quote #
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Client / Reporting Information

Company Name / Branch: GHD / Houston
Company Address:
Email: Phone No:
Project Contact:
Samplers's Name Rebecca Jones

Project Information

Project Name/Number: LPU #600/073817
Project Location:
Invoice To:
PO Number:

Analytical Information

Chloride
Moisture

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
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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	SB-11-S-9-10-171024	9-10	10/24	0926	S	1								1	/	/	
2	SB-11-S-19-20-171024	19-20		0929		1								1	/	/	
3	SB-11-S-29-30-171024	29-30		0932		1								1	/	/	
4	SB-11-S-39-40-171024	39-40		0935		1								1	/	/	
5	SB-11-S-49-50-171024	49-50		0938		1								1	/	/	
6	SB-11-S-59-60-171024	59-60		0941		1								1	/	/	
7	SB-11-S-69-70-171024	69-70		0944		1								1	/	/	
8	SB-11-S-79-80-171024	79-80		0947		1								1	/	/	
9	SB-11-S-89-90-171024	89-90	↓	0950	↓	1								1	/	/	
10	Temp Blank																

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 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 IV (Full Data Pkg /raw data)
- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Temp: 6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 5.8

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	Rebecca Jones	10/25-0800	1 Xenco	2		2 Courtney 10/25 1050
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable ☐	On Ice ☒ Cooler Temp. Thermo. Corr. Factor

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced 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: 10/25/2017 12:50:00 PM

Work Order #: 566503

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)?	5.8
#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)?	**No**
#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: Connie Hernandez Date: 10/25/2017

Checklist reviewed by: Kelsey Brooks Date: 10/26/2017

Appendix C
2018 Work Plan

July 16, 2018 Reference No. 073817

Ms. Olivia Yu
Environmental Specialist
New Mexico Oil Conservation Division – District 1
1625 N. French Drive
Hobbs, New Mexico 88240

Re: 2018 Work Plan
Lovington Paddock Unit 60 – Produced Water Release (RP-1498)
Lea County, New Mexico

Dear Ms. Yu,

1. Project Information

The Site is located approximately 5 miles southeast of Lovington in Lea County, New Mexico in Unit F, Section 1, Township 17 South, Range 36 East. The land surface is owned by the City of Lovington (COL) and the minerals are managed by the State of New Mexico. Chevron Environmental Management Company (CEMC) submitted a C-141 Form to the New Mexico Oil Conservation Division (NMOCD) dated July 24, 2007 reporting a release of approximately 50 barrels of produced brine from the failure of a water injection trunkline. The approximate affected area was estimated at 2,950 square feet. NMOCD incident number RP-1498 was assigned by the NMOCD Hobbs office.

Soil

Information available from various sources including the Petroleum Recovery Research Center (PRRC) Mapping Portal, GHD currently managed groundwater site(s) data, and the United States Geological Survey (USGS) Current Water Database for the Nation, concludes:

a) The depth to groundwater from the deepest impacted soil at the Site is less than 50-feet bgs.

b) The nearest private domestic water source is greater than 200-feet from the release site.

c) The nearest public/municipal water source is greater than 1,000-feet from the release site.

d) The release site lies more than 1,000 horizontal feet from the nearest surface water body.

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). Consequently, the NMOCD total ranking criteria score is twenty (20) for the Site. The site-specific Recommended Remedial Action Levels (RRALs) applied to this location by the NMOCD are 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 an NMOCD accepted 600 mg/kg for horizontal and 250 mg/kg for vertical delineation of chloride.

GHD
6320 Rothway Street Suite 100 Houston Texas 77040 USA
T 713 734 3090 **F** 713 734 3391 **W** www.ghd.com

In an August 28, 2017 telephone conversation between Bernard Bockisch (GHD) and Jim Griswold (NMOCD Environmental Bureau Chief), GHD was informed that the NMOCD is accepting chloride concentrations of 600 mg/kg for the horizontal delineation assessment clean up levels.

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 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 Standard for Groundwater (mg/L)
Chloride	250
TDS	1,000

Soil assessment activities were performed in August 2010, May 2011, and December 2012 at the Site. One monitoring well (MW-1) was installed in October 2016 to assess potential groundwater impact. Delineation activities were continued in 2017 and included the advancement of six additional soil borings (SB-6 through SB-11) to 90 feet bgs. Analytical data obtained from the assessment performed in 2017 indicates that vertical and horizontal extent of chloride impacts in soil are not fully delineated.

2. 2018 Scope of Work

On February 13, 2018, GHD and Chevron representatives met with NMOCD and the New Mexico State Land Office (NMSLO) regarding further delineation activities at the Site. Recommended assessment activities are detailed below.

2.1 Task I - Soil Boring (SB-12 through SB-20) and Monitoring Well (MW-2) Installation Activities

GHD is proposing to install nine additional soil borings (SB-12 through SB-20) to approximately 90 feet bgs to further horizontal delineation of chloride impact to soil. Field screening of soil cuttings for chlorides will be performed to guide drilling activities and soil samples will be collected for laboratory analysis. Additionally, GHD is proposing the installation of one 4-inch diameter monitoring well (MW-2) to the southeast (downgradient) of the impacted area to further screen soil and groundwater for chloride impact (see Figure 1). Preparation of a permit application and associated fees for the required NMOSE monitoring well permit will be submitted prior to drilling activities.

Prior to mobilizing drilling equipment to the Site, a utility notification will be made at least 48-hours prior to mobilization. In addition to the utility locate, a geophysical survey will be completed for each of the proposed boring locations.

A hydroexcavator or similar borehole clearance equipment will be used to clear the boring locations with a diameter at least 2 inches greater than the size of the largest drilling tool. The boring will be cleared to 5-feet bgs or refusal. Initially, each boring will be drilled with air-rotary (soil borings) and switched to mud-

rotary (monitoring well only) toward the bottom portion of the boring (if necessary). The rig will be operated by a New Mexico licensed water well driller.

Soil samples will be collected at 10-foot intervals. Soil samples will be field screened for chloride concentrations using Hach Chloride Titration strips and evaluated by the field geologist during the sampling event. Selected soil samples will be submitted for laboratory analysis of chloride by EPA Method 300. Soil sampling will be completed in accordance with our standard Quality Assurance/ Quality Control (QA/QC) procedures designed to minimize cross-contamination between samples and to provide reliable laboratory results.

The total depth and nature of any sampling of soils will be based on results of the chloride field screening and the professional judgment of the GHD geologist with the intent to establish the depth at which soil concentrations are below the Site RRAL. The soil borings will be backfilled with cuttings from the boring and the top 10 feet plugged with bentonite chips.

One soil boring (MW-2) will be installed approximately 20 to 25 feet into the Ogallala Formation (i.e., approximately 130 feet bgs) and completed as a 4 inch monitoring well. A GHD geologist will record the subsurface lithology and any sample data on the well construction diagram/soil boring logs.

Following monitoring well installation activities, the newly installed well (MW-2) will be developed by the driller. Roll off/mud boxes will be located proximate to the proposed well location and drilling and formation fluids, along with drill cuttings, will be containerized. Following waste characterization (estimated at one month), drill cuttings (non-hazardous) will be removed and transported to CEMC-approved Sundance Services, Inc. for disposal.

2.2 Task II – 2018 Groundwater Monitoring Activities

Following installation and development of MW-2, the water levels within the two monitoring wells (MW-1 and MW-2) will be gauged prior to sample collection. Prior to purging the wells, static fluid levels will be measured with an electric interface probe to the nearest hundredth of a foot. After recording fluid levels, monitoring wells will be profiled using a conductivity meter. Subsequent to well gauging, the monitoring wells will be purged using EPA-approved low-flow methodology. Groundwater samples will be collected following purging.

Groundwater samples will be placed on ice in insulated coolers and chilled to a temperature of approximately 4°C (40°F). The coolers will then be sealed for shipment and proper chain-of-custody documentation will accompany the samples to the laboratory for analysis of chloride by EPA Method 300 and TDS by Method 2540C.

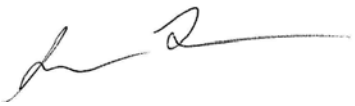
2.3 Task III – Reporting

Following completion of the field activities detailed above, a report summarizing the results of the additional assessment will be prepared for submittal to NMOCD. The report will include a Site description, project history, description of field events, a discussion of results, and recommendations (if any). Soil and groundwater analytical results collected will be tabulated in data tables and presented graphically using concentration maps. Boring logs and monitor well construction logs for the Site will also be completed.

If you have any questions, please contact me at 713-734-3090.

Sincerely,

GHD



Scott Foord, P.G.
Project Manager

SF/sh/1

Encl.

Attachment: Figure 1 – Proposed Boring Location Map

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

Lat/Long: 32.866167° North, 103.309028° West

0 20 40ft

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

Sample ID — SB-10 — 10/24/17 — Sample Date
Depth — 0.5-1' — Sample Depth (ft)
Chloride — 1190 — Sample Result (mg/kg)

GHD

CEMC
LEA COUNTY, NEW MEXICO
LPU-60 RELEASE

073817-00

May 14, 2018

PROPOSED BORING LOCATION MAP

Figure 1

CAD File: I:\CAD\Files\07----\073---\073817-CEMC-LPU #60\Proposal\073817-00(Proposal-02)GN-DL001.dwg