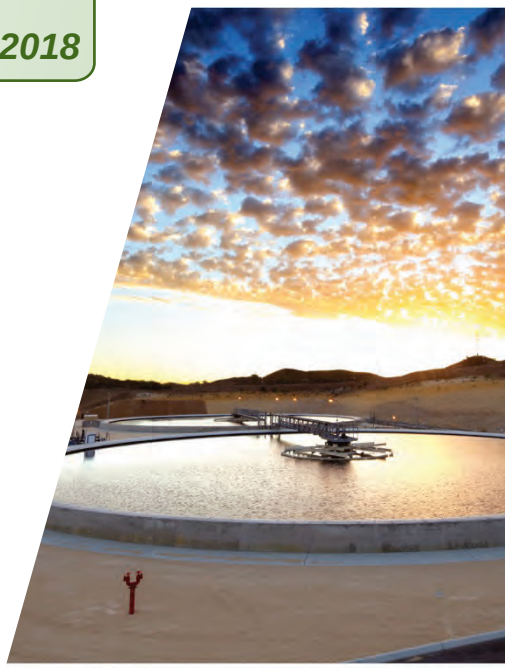
APPROVED
By Olivia Yu at 8:33 am, Oct 25, 2018

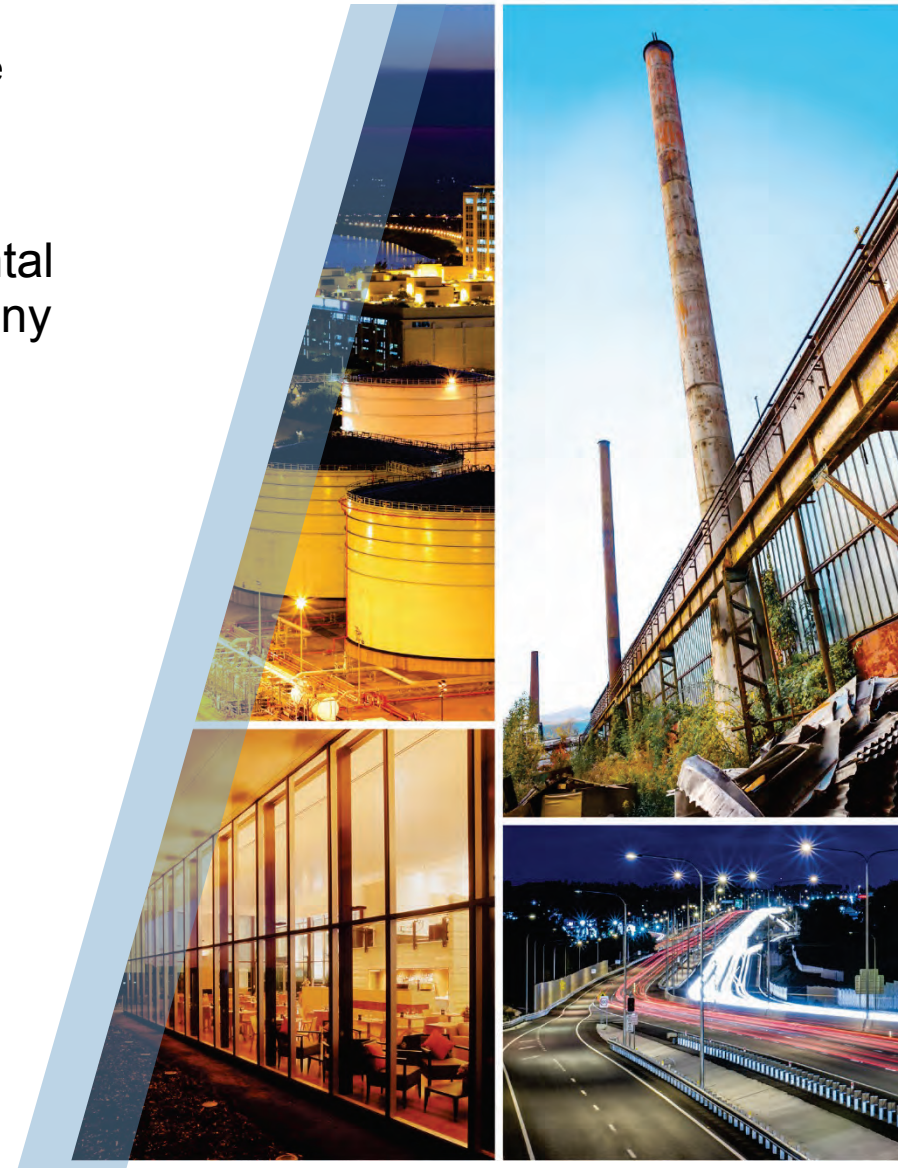
NMOCD grants approval for reclamation procedure for 1RP-3941, pending approval from NMSLO.



Soil Assessment Report

Vacuum Glorietta West Unit Satellite
No. 4 (RP-3941)
Injection Trunkline Release
Lea County, New Mexico

Chevron Environmental Management Company



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1. Introduction

GHD is pleased to present this Soil Assessment Report to Chevron Environmental Management Company (CEMC) for the Vacuum Glorietta West Unit (VGWU) Satellite No. 4 Injection Trunkline release location (hereafter referred to as the "Site"). The Site is located in Unit B, Section 1, Township 18 South, Range 34 East, approximately 1.38-miles southwest of Buckeye, in eastern Lea County, New Mexico (refer to Figure 1 and Figure 2).

2. NMOCD Closure Requirement Criteria for Soils

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

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

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

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

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

Localized depth to groundwater was confirmed to be approximately 130 feet below ground surface (bgs) in 2018 based on the information from monitoring well MW-12 associated with the Buckeye Compressor Station facility and VGSAU 58 (AP-104) located approximately 300-feet east of the Site (both sites monitored by GHD - see Figure 4). The boring log for MW-12 is included in Appendix A. Additionally, information available from various sources including the Petroleum Recovery Research Center (PRRC) Mapping Portal, currently managed groundwater site(s) data by GHD, and the United States Geological Survey (USGS) Current Water Database for the Nation, concludes:

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

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

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

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

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

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

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

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

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

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

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

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

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

3. Project Information and Background

Chevron submitted an initial C-141 Form to the NMOCD dated March 6, 2009, describing a release of 29 barrels (bbls) of produced water with zero volume being recovered; stating, “No remediation will be done at this time because drilling rig is operating on location (VGSAU #459).” The source of the release was recorded to have been a “Line Leak”.

Crain Environmental (Crain) conducted field assessment activities at the Site in August 2009 through October 2010. Crain’s assessment included site visits, soil sample collection for analytical laboratory analyses, and a preliminary determination of impacts to environmental media. Crain collected soil samples at seven locations over a 1 year and 4 month period. Initial sample collection efforts were completed in August 2009 to a depth of 6-inches, and in September 2009 to depths up to 4-feet bgs within the apparent brine-impacted area. Analytical chloride concentrations for these samples ranged from 32 mg/kg to as high as 29,400 mg/kg. Deeper soil sampling and testing at three locations (SS-1 [BH-1], SS-2 [BH-2] and SS-3 [BH-3]) were completed in October 2010. Analytical chloride concentrations for these collected samples ranged from 160 mg/kg to as high as 2,360 mg/kg (Figure 3). Soil laboratory analytical results of the samples collected by Crain in 2009 and 2010 are summarized in Table 1.

In 2014, Chevron contracted GHD to perform a supplemental soil assessment at the Site. On March 18, 2014, GHD oversaw the advancement of six (6) soil borings to depths ranging from approximately 35 feet to 50 feet bgs. Results of the 2014 soil boring and sampling program indicated the presence of elevated chloride concentrations in soil that exceeded the historic Site RRAL of 600 mg/kg for chloride. Soil analytical results from this investigation are presented in Table 1.

Three (3) soil borings (SB-7, SB-8, and SB-9) were advanced across the Site in 2015 to further assess chloride impact to soil. The three soil borings were advanced to total depths of 90 feet bgs and soil samples were collected at varying depth intervals. The majority of the twenty-seven soil samples collected from the Site in 2015 for laboratory analyses were below the historic Site RRAL (600 mg/kg) for chloride with the exception SB-8 at 30 feet bgs (630 mg/kg) and SB-9 at 5 feet bgs (2,540 mg/kg). Soil analytical results from this investigation are presented in Table 1.

In 2017, a two-phase geophysical investigation (EM-31 and Electrical Resistivity (ER)) was completed and subsequently three (3) additional soil borings (SB-10, SB-11, and SB-12) were advanced at the Site. The geophysical investigation successfully delineated the horizontal extent of suspected brine-impacted areas. In general, the ER survey results indicate the zone of suspected brine impact affecting soils extends beyond 40 feet bgs.

Soil samples were collected from each boring (SB-10 through SB-12) for analytical analyses in an attempt to further delineate the horizontal and vertical extents of the chloride impact. Chloride concentrations above the historic RRAL (above 600 mg/kg) were reported for shallow soil samples in SB-10 from 0.5 to 5 feet bgs, with the highest concentration of 5,720 mg/kg at 0.5-1 feet bgs. Chloride concentrations above the RRAL were not reported from 19 to 90 feet bgs within SB-10. SB-11 exhibited chloride concentrations above the RRAL from 0.5 through 30 feet bgs, with the highest concentration of 7,690 mg/kg at 19-20 feet bgs. Chloride concentrations were not reported above the RRAL within the remainder of the samples collected from the borehole (from 39 feet to 90 feet bgs). Chloride concentrations were not reported above the RRAL in SB-12. Soil analytical results from this investigation are also presented in Table 1, and Site Details Map is presented as Figure 3. It should be noted that only two surface soil samples collected from the assessments described above exceed the revised screening limit of 20,000 mg/kg for chloride.

A Work Plan was submitted and approved by the NMOCD on July 26, 2018 to further assess the Site soils for chloride impact through the advancement and sampling of seven additional soil borings. The soil boring locations were determined based on the geophysical survey and previous soil analytical results detailed above. The supplemental investigation completed in 2018 is detailed below.

4. 2018 Drilling and Sampling

Seven soil borings were advanced at the Site to further assess and delineate the release area. Prior to mobilizing drilling equipment to the Site, the soil boring locations were pre marked and a New Mexico 811 One-Call utility locate was completed at least 48 hours prior to start of work. A secondary utility check was completed that included Ground Penetrating Radar (GPR) services by High Mesa of Albuquerque, New Mexico.

On July 25, 2018, GHD and GHD subcontractor Harrison Cooper, Inc. (HCI), a New Mexico licensed drilling company, mobilized to the Site to begin soil boring installation activities for SB-13 through SB-19. The soil borings were pre-cleared with an air knife to a depth of 5 feet bgs or until refusal. The remainder of each boring was advanced using an air rotary drill rig. Drilling depths were determined based on field chloride test results. A total depth of 50 feet bgs was reached in SB-13, a total depth of 20 feet bgs in SB-14, SB-16, SB-18, and SB-19, a total depth of 60 feet bgs in SB-15, and a total depth of 90 feet bgs was reached in SB-17. The soil cuttings were spread on-Site and soil borings were plugged following completion with hydrated 3/8 inch bentonite hole plug. During drilling, a GHD geologist observed, visually inspected, and logged soil cuttings at 10-foot intervals and recorded subsurface lithology in accordance with the Unified Soil Classification System in field books. Boring logs prepared from the field information can be found in Appendix A.

The soil types observed in soil samples collected during the drilling program consisted of top soil/or well pad caliche followed by caliche, sandstone, and sand. Chloride screening was accomplished in the field by mixing soil samples with distilled water, then testing the rinsate using Hach chloride test strips. Total depths of the borings and collection of soil samples for laboratory analysis were determined based on chloride field test results.

Soils samples were collected from SB-13 at 2-4, 10, 15, 20, 30, 40, and 50 feet bgs. Soil samples were collected for laboratory analysis from SB-14, SB-16, SB-18 and SB-19 at 2-4, 10, 15, and 20 feet depths bgs. Soils samples were collected from SB-15 at 2-4, 10, 15, 20, 30, 40, 50, and 60 feet depths bgs. Soils samples were collected from SB-17 at 2-4, 10, 15, and 20 feet depths bgs, then at 10-foot intervals to the termination of the boring at 90 feet bgs. SB-17 could not be advanced deeper with air rotary drilling methods due to borehole collapse at depth. Soil samples were packed into laboratory prepared jars and stored in a cooler with ice. The soil samples were sent to Xenco Laboratories (Xenco) in Midland, Texas for chloride analysis by EPA Method 300.

4.1 Soil Sampling Analytical Results

A soil analytical summary of results from 2009 through 2018 is presented in Table 1. A Site Details and Analytical Results Map (2009 – 2018) is presented as Figure 4.

- Chloride concentrations above the revised Rule 19.15.29 screening limit of 20,000 mg/kg were not reported in any of the soil borings installed in July 2018 (SB-13 through SB-19).

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

5. Summary of Findings

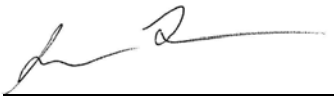
Evaluation of the analytical data obtained from soil assessment and delineation activities performed from 2014 through 2018 indicate horizontal and vertical delineation of chloride impacts has been achieved at the Site to support remediation activities (excavation and lining of the area). Additionally, monitoring well MW-12 was gauged during the routine semi-annual groundwater sampling event at the Chevron Buckeye Compressor Site (AP-104) on August 27, 2018. The depth to groundwater was determined to be 132.13 feet below top of casing confirming that depth to groundwater at the Site is greater than 100 feet bgs.

5.1 2018 Remediation Activities

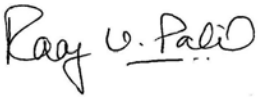
Lateral and horizontal delineation have been completed at the Site. Soil remediation activities (excavation) per NMAC 19.15.29.13 will be conducted at the Site following NMOCD approval of the 2018 Remediation Work Plan attached as Appendix C of this report.

Submitted by:

GHD Services, Inc.

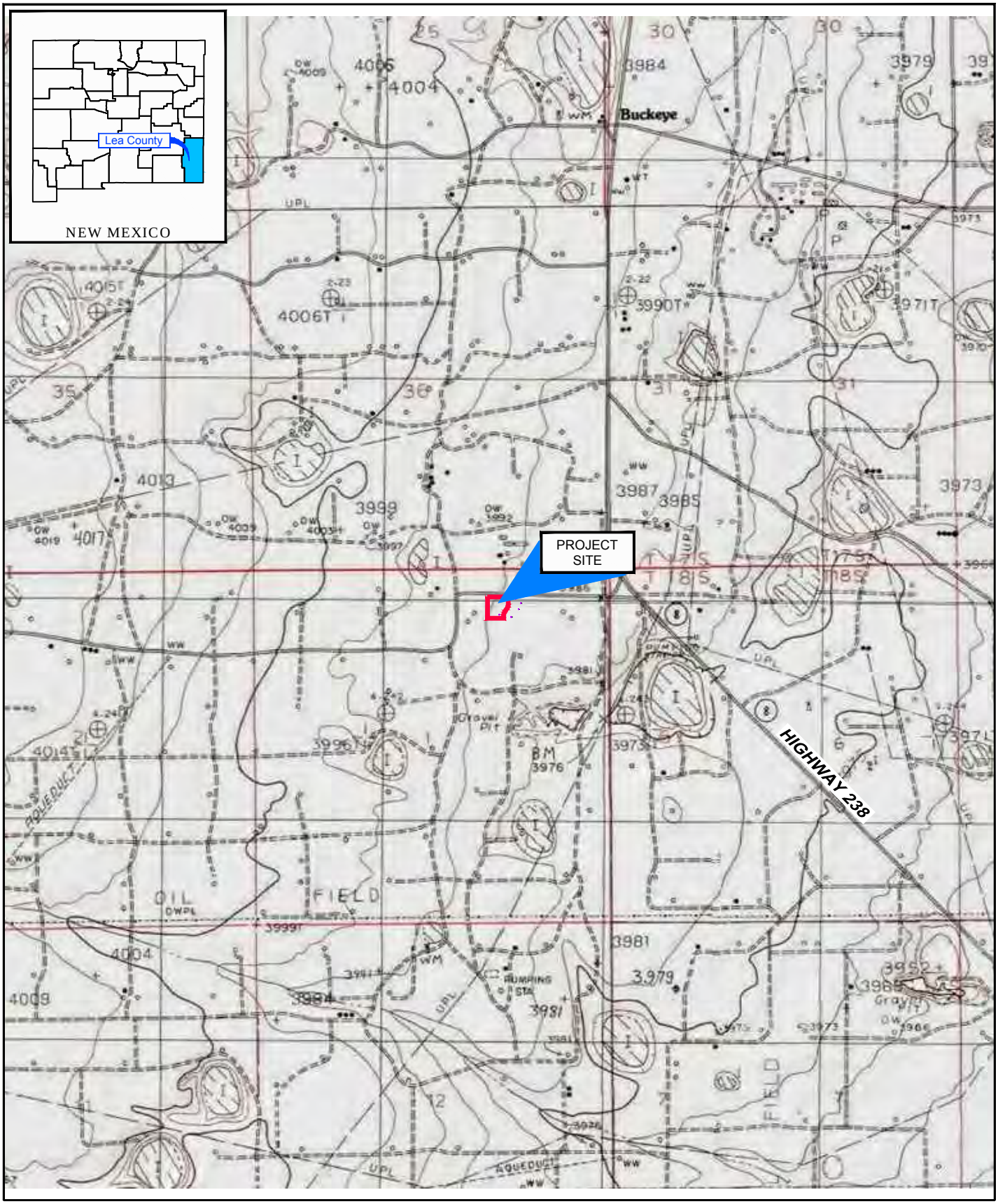


Scott Foord, P.G., Project Manager



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

Figures



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

Lat/Long: 32.7827° North, 103.5106° West

0 1000 2000ft

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

CEMC
LEA COUNTY, NEW MEXICO
VGWU SATELLITE #4 TRUNK LINE

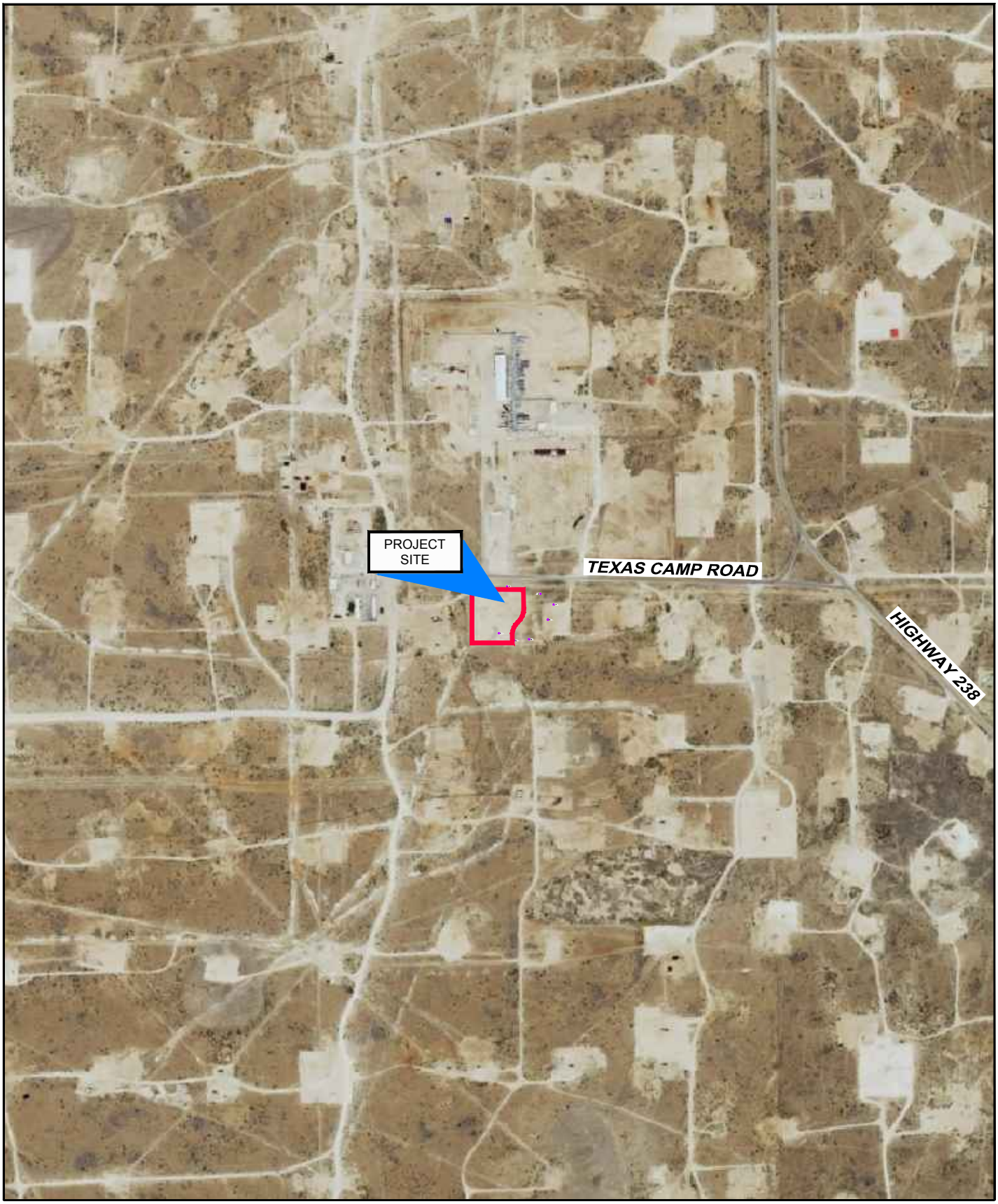
074633-2018

Aug 13, 2018

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\07----\074---\074633-VGWU Satellite #4 Trunkline\074633-2018\074633-2018(007)GN-DL001.dwg



0 400 800ft

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

CEMC
LEA COUNTY, NEW MEXICO
VGWU SATELLITE #4 TRUNK LINE

074633-2018
Aug 13, 2018

AERIAL SITE MAP

FIGURE 2

CAD File: I:\CAD\Files\07----\074---\074633-VGWU Satellite #4 Trunkline\074633-2018\074633-2018(007)GN-DL001.dwg

Source: USDA FSA Imagery, May 10, 2014

LAT/LONG: 32.7827° NORTH, 103.5106° WEST

0 20 60ft

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

CEMC
LEA COUNTY, NEW MEXICO
VGWU SATELLITE #4 TRUNK LINE

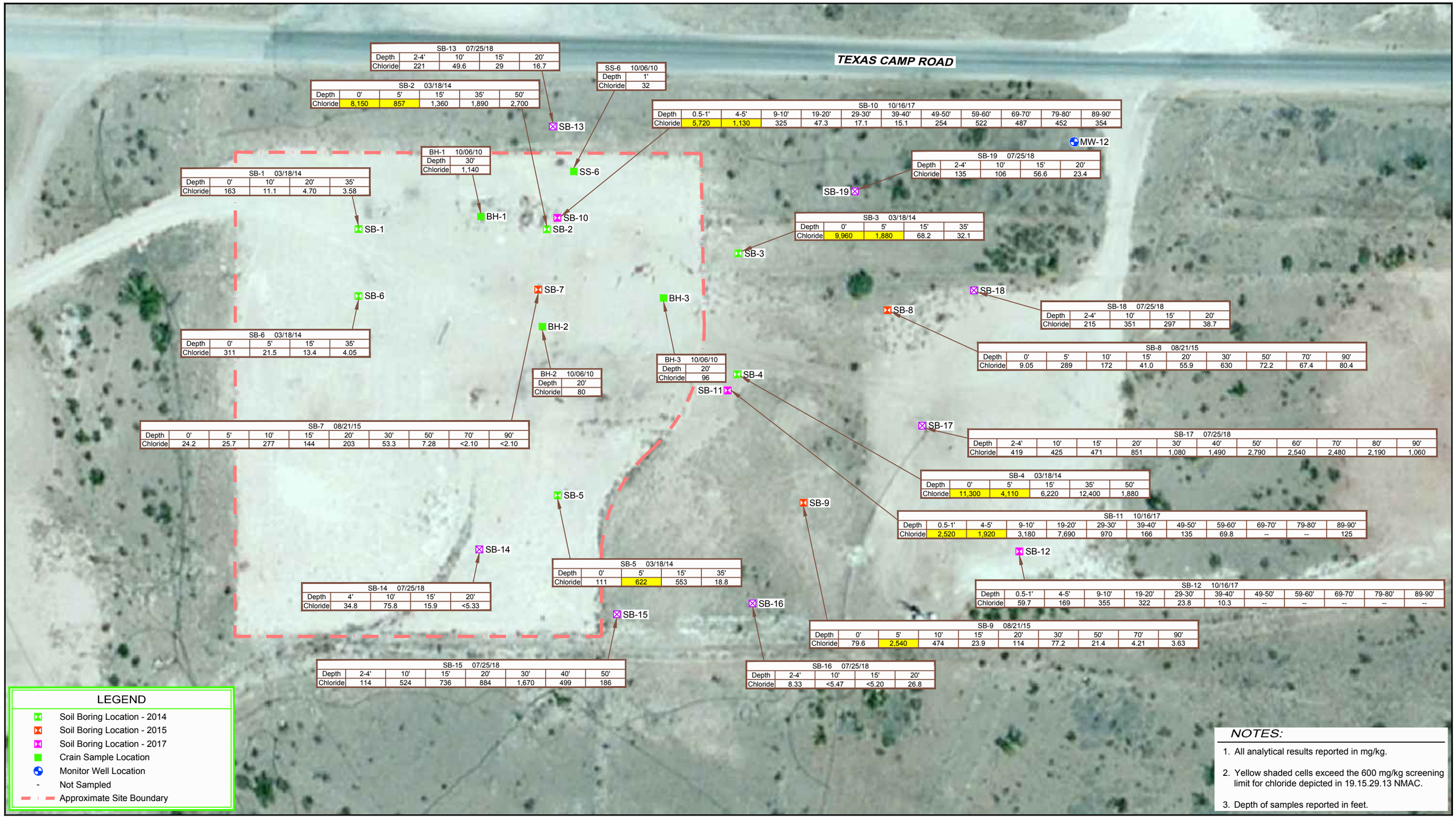
SITE DETAILS

074633-2018

Aug 13, 2018

FIGURE 3

CAD File: I:\CAD\Files\07----\074---\074633-VGWU Satellite #4 Trunkline\074633-2018\074633-2018(007)GN-DL001.dwg



Source: USDA FSA Imagery, May 10, 2014

LAT/LONG: 32.7827° NORTH, 103.5106° WEST

0 20 60ft

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

Sample ID — SB-11 — 10/16/17 — Sample Date
Depth — 0.5-1' — Sample Depth (ft)
Chloride — 2,520 — Sample Result (mg/kg)

CEMC
LEA COUNTY, NEW MEXICO
VGWU SATELLITE #4 TRUNK LINE

074633-2018
Oct 11, 2018

SITE DETAILS AND ANALYTICAL RESULTS MAP

FIGURE 4

CAD File: I:\CAD\Files\07----\074---\074633-VGWU Satellite #4 Trunkline\074633-2018\074633-2018(007)GN-DL001.dwg

Tables

Table 1

Soil Analytical Results Summary
Chevron Environmental Management Company
VGWU Satellite NO. 4 Injection Trunkline
Lea County, New Mexico

Sample ID	Depth (feet)	Date	Chloride (mg/kg)
NMOCD Chloride Screening Standard			**20000***
Restoration Requirements within the Top 4 feet bgs			**600***
SS-1	0.5	8/4/09	4890
	1	9/21/09	3400
	2	9/21/09	4040
	2.5	9/21/09	1880
SS-2	0.5	8/4/09	**23400**
	1	9/21/09	1280
	2	9/21/09	1180
	3	9/21/09	1460
SS-3	0.5	8/4/09	15500
	1	9/21/09	1380
	2	9/21/09	64
	3	9/21/09	864
	4	9/21/09	1250
SS-4	0.5	8/4/09	**29400**
SS-5	0.5	9/21/09	480
	1	9/21/09	224
SS-6	0.5	9/21/09	64
	1	9/21/09	32
SS-7	0.5	9/21/09	480
	1	9/21/09	32
BH-1	4-5	10/6/10	1520
	10-11	10/6/10	736
	15-16	10/6/10	528
	20-21	10/6/10	1520
	25-26	10/6/10	2360
	30-31	10/6/10	1140
BH-2	5-6	10/6/10	160
	10-11	10/6/10	304
	15-16	10/6/10	96.0
	20-21	10/6/10	80.0
BH-3	5-6	10/6/10	576
	10-11	10/6/10	640
	15-16	10/6/10	144
	20-21	10/6/10	96.0

Table 1

Soil Analytical Results Summary
Chevron Environmental Management Company
VGWU Satellite NO. 4 Injection Trunkline
Lea County, New Mexico

Sample ID	Depth (feet)	Date	Chloride (mg/kg)
NMOCD Chloride Screening Standard			**20000***
Restoration Requirements within the Top 4 feet bgs			**600***
SB-1	0	3/18/14	163
	10	3/18/14	11.1
	20	3/18/14	4.7
	35	3/18/14	3.58
SB-2	0	3/18/14	8150
	5	3/18/14	857
	15	3/18/14	1360
	35	3/18/14	1890
	50	3/18/14	2700
SB-3	0	3/18/14	9960
	5	3/18/14	1880
	15	3/18/14	68.2
	35	3/18/14	32.1
SB-4	0'	3/18/14	11300
	5	3/18/14	4110
	15	3/18/14	6220
	35	3/18/14	12400
	50	3/18/14	1880
SB-5	0	3/18/14	111
	5	3/18/14	622
	15	3/18/14	553
	35	3/18/14	18.8
SB-6	0	3/18/14	311
	5	3/18/14	21.5
	15	3/18/14	13.4
	35	3/18/14	4.05
SB-7	0	8/21/15	24.2
	5	8/21/15	25.7
	10	8/21/15	277
	15	8/21/15	144
	20	8/21/15	203
	30	8/21/15	53.3
	50	8/21/15	7.28
	70	8/21/15	<2.10
	90	8/21/15	<2.10

Table 1

Soil Analytical Results Summary
Chevron Environmental Management Company
VGWU Satellite NO. 4 Injection Trunkline
Lea County, New Mexico

Sample ID	Depth (feet)	Date	Chloride (mg/kg)
NMOCD Chloride Screening Standard			**20000***
Restoration Requirements within the Top 4 feet bgs			**600***
SB-8	0	8/21/15	9.05
	5	8/21/15	289
	10	8/21/15	172
	15	8/21/15	41.0
	20	8/21/15	55.9
	30	8/21/15	630
	50	8/21/15	72.2
	70	8/21/15	67.4
	90	8/21/15	80.4
SB-9	0	8/21/15	79.6
	5	8/21/15	2540
	10	8/21/15	474
	15	8/21/15	23.9
	20	8/21/15	114
	30	8/21/15	77.2
	50	8/21/15	21.4
	70	8/21/15	4.21
	90	8/21/15	3.63
SB-10	0.5-1	10/16/17	5720
	4-5	10/16/17	1130
	9-10	10/16/17	325
	19-20	10/16/17	47.3
	29-30	10/16/17	17.1
	39-40	10/16/17	15.1
	49-50	10/16/17	254
	59-60	10/16/17	522
	69-70	10/16/17	487
	79-80	10/16/17	452
	89-90	10/16/17	354

Table 1

Soil Analytical Results Summary
Chevron Environmental Management Company
VGWU Satellite NO. 4 Injection Trunkline
Lea County, New Mexico

Sample ID	Depth (feet)	Date	Chloride (mg/kg)
NMOCD Chloride Screening Standard			**20000***
Restoration Requirements within the Top 4 feet bgs			**600***
SB-11	0.5-1	10/16/17	2520
	4-5	10/16/17	1920
	9-10	10/16/17	3180
	19-20	10/16/17	7690
	29-30	10/16/17	970
	39-40	10/16/17	166
	49-50	10/16/17	135
	59-60	10/16/17	69.8
	69-70	10/16/17	---
	79-80	10/16/17	---
	89-90	10/16/17	125
SB-12	0.5-1	10/16/17	59.7
	4-5	10/16/17	169
	9-10	10/16/17	355
	19-20	10/16/17	322
	29-30	10/16/17	23.8
	39-40	10/16/17	10.3
	49-50	10/16/17	---
	59-60	10/16/17	---
	69-70	10/16/17	---
	79-80	10/16/17	---
	89-90	10/16/17	---
SB-13	2-4	7/25/18	221
	10	7/25/18	49.6
	15	7/25/18	29
	20	7/25/18	16.7
SB-14	4	7/25/18	34.8
	10	7/25/18	75.8
	15	7/25/18	15.9
	20	7/25/18	<5.33
SB-15	2-4	7/25/18	114
	10	7/25/18	524
	15	7/25/18	736
	20	7/25/18	884
	30	7/25/18	1670
	40	7/25/18	499
	50	7/25/18	186

Table 1

Soil Analytical Results Summary
Chevron Environmental Management Company
VGWU Satellite NO. 4 Injection Trunkline
Lea County, New Mexico

Sample ID	Depth (feet)	Date	Chloride (mg/kg)
NMOCD Chloride Screening Standard			**20000***
Restoration Requirements within the Top 4 feet bgs			**600***
SB-16	2-4	7/25/18	8.33
	10	7/25/18	<5.47
	15	7/25/18	<5.20
	20	7/25/18	26.8
SB-17	2-4	7/25/18	419
	10	7/25/18	425
	15	7/25/18	471
	20	7/25/18	851
	30	7/25/18	1080
	40	7/25/18	1490
	50	7/25/18	2790
	60	7/25/18	2540
	70	7/25/18	2480
	80	7/25/18	2190
	90	7/25/18	1060
SB-18	2-4	7/25/18	215
	10	7/25/18	351
	15	7/25/18	297.0
	20	7/25/18	38.7
SB-19	2-4	7/25/18	135
	10	7/25/18	106
	15	7/25/18	56.6
	20	7/25/18	23.4

Notes:

1. All analytical results reported in (mg/kg) milligrams per kilogram
2. Chloride analyses by EPA Method 300.0
3. Highlighted cells indicate concentrations exceeding guidance limits
4. bgs - below ground surface
5. Depth of samples reported in feet
6. '<' Indicates laboratory detection was below the reporting limit
7. -- Sample was not analyzed
8. * Revised screening limit and restoration criteria per Rule 19.15.29 effective August 14, 2018

Appendices

Appendix A
Soil Boring Logs

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: VGWU SAT4
PROJECT NUMBER: 74633
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: SB-13
DATE COMPLETED: 25 July 2018
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Jennifer Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	SAMPLE Chloride (mg/kg)
0	SILT (ML); light grey, contains caliche and f sand		2-3		1.0		136
5		6.00					
10	SILTY SAND (SM); light brownish grey, contains caliche, some pebble sized gravel present		9-10		1.0		<112
15			14-15		1.0		<112
20		20.00	19-20		1.0		<112
25	SILTY SAND (SM); light yellow grey, contains caliche						
30			29-30		1.0		<112
35							
40		40.00	39-40		1.0		<112
45	SILTY SAND (SM); light brownish grey, contains caliche						
50		50.00	49-50		1.0		<112
55	END OF BOREHOLE @ 50.0ft BGS						
60							
65							
70							
75							
80							
85							
90							
95							

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 074633.GPJ CRA_CORP.GDT 31/7/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: VGWU SAT4
PROJECT NUMBER: 74633
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: SB-14
DATE COMPLETED: 25 July 2018
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Jennifer Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	SAMPLE Chloride (mg/kg)
5	SILT (ML); light grey, contains caliche and f sand		3-4		1.0		<128
		6.00					
10	SILTY SAND (SM); light brownish grey, contains caliche, some pebble sized gravel present		9-10		1.0		<128
15		15.00	14-15		1.0		<128
	SILTY SAND (SM); light yellow grey, contains caliche						
20		20.00	19-20		1.0		<128
	END OF BOREHOLE @ 20.0ft BGS						

25 30 35 40 45 50 55 60 65 70 75 80 85 90 95

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 074633.GPJ CRA_CORP.GDT 31/7/18

This log should not be used separately from the original report.

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: VGWU SAT4
PROJECT NUMBER: 74633
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: SB-15
DATE COMPLETED: 25 July 2018
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Jennifer Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	SAMPLE Chloride (mg/kg)
0	SILT (ML); light grey, contains caliche and f sand		2-3		1.0		<128
7.00	SILTY SAND (SM); light brownish grey, contains caliche, some pebble sized gravel present	7.00	9-10		1.0		272
			14-15		1.0		404
20.00	SILTY SAND (SM); light yellow grey, contains caliche	20.00	19-20		1.0		524
			29-30		1.0		1156
40.00	SILTY SAND (SM); light brownish grey, contains caliche	40.00	39-40		1.0		336
			49-50		1.0		136
60.00	END OF BOREHOLE @ 60.0ft BGS	60.00	59-60		1.0		208

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 074633.GPJ CRA_CORP.GDT 31/7/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: VGWU SAT4
PROJECT NUMBER: 74633
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: SB-16
DATE COMPLETED: 25 July 2018
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Jennifer Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	SAMPLE Chloride (mg/kg)
0	SILT (ML); light grey, contains caliche and f sand		2-3		1.0		<128
5							
	SILTY SAND (SM); light brownish grey, contains caliche, some pebble sized gravel present	6.00					
10			9-10		1.0		<128
15			14-15		1.0		<128
	SILTY SAND (SM); light yellow grey, contains caliche	17.50					
20	END OF BOREHOLE @ 20.0ft BGS	20.00	19-20		1.0		<128
25							
30							
35							
40							
45							
50							
55							
60							
65							
70							
75							
80							
85							
90							
95							

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 074633.GPJ CRA_CORP.GDT 31/7/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: VGWU SAT4
PROJECT NUMBER: 74633
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: SB-17
DATE COMPLETED: 25 July 2018
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Jennifer Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	INTERVAL	REC (ft)	PP (tsf)	Chloride (mg/kg)
	SILT (ML); light grey, contains caliche and f sand		2-3		1.0		208
	SILTY SAND (SM); light grey, contains caliche	6.00	9-10		1.0		296
			14-15		1.0		360
	SILTY SAND (SM); light yellow grey, contains caliche	17.50	19-20		1.0		564
			29-30		1.0		612
	SILTY SAND (SM); light brownish grey, contains caliche	35.00	39-40		1.0		1224
			49-50		1.0		2756
			59-60		1.0		2296
			69-70		1.0		1772
			79-80		1.0		1528
	END OF BOREHOLE @ 90.0ft BGS	90.00	89-90		1.0		720

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 074633.GPJ CRA_CORP.GDT 31/7/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: VGWU SAT4
PROJECT NUMBER: 74633
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: SB-18
DATE COMPLETED: 25 July 2018
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Jennifer Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	SAMPLE Chloride (mg/kg)
0	SILT (ML); light grey, contains caliche and f sand		2-3		1.0		136
5		6.00					
10	SILTY SAND (SM); light brownish grey, contains caliche, some pebble sized gravel present		9-10		1.0		236
15			14-15		1.0		160
20	SILTY SAND (SM); light yellow grey, contains caliche	17.50	19-20		1.0		<112
	END OF BOREHOLE @ 20.0ft BGS	20.00					

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 074633.GPJ CRA_CORP.GDT 31/7/18

STRATIGRAPHIC LOG
(OVERBURDEN)

PROJECT NAME: VGWU SAT4
PROJECT NUMBER: 74633
CLIENT: Chevron
LOCATION: Lovington

HOLE DESIGNATION: SB-19
DATE COMPLETED: 25 July 2018
DRILLING METHOD: Air Rotary
FIELD PERSONNEL: Jennifer Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)	SAMPLE Chloride (mg/kg)
0	SILT (ML); light grey, contains caliche and f sand		2-3		1.0		<112
5							
	SILTY SAND (SM); light brownish grey, contains caliche, some pebble sized gravel present	6.00					
10			9-10		1.0		<112
15			14-15		1.0		<112
	SILTY SAND (SM); light yellow grey, contains caliche	17.50					
20	END OF BOREHOLE @ 20.0ft BGS	20.00	19-20		1.0		<112
25							
30							
35							
40							
45							
50							
55							
60							
65							
70							
75							
80							
85							
90							
95							

NOTES:

LABORATORY ANALYSIS ( )

OVERBURDEN LOG 074633.GPJ CRA_CORP.GDT 31/7/18

Appendix B
Soil Laboratory Analytical Report

Certificate of Analysis Summary 593692

GHD Services, INC- Midland, Midland, TX

Project Name: VGWU Satellite 4 (Sat-4)

Project Id: 074633
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-26-18 01:50 pm
Report Date: 09-AUG-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	593692-001		593692-002		593692-003		593692-004		593692-005		593692-006	
	Field Id:	SB-14-4'		SB-14-10'		SB-14-15'		SB-14-20'		SB-15-2'-4'		SB-15-10'	
	Depth:	4- ft		10- ft		15- ft		20- ft		2-4 ft		10- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-25-18 09:05		Jul-25-18 09:10		Jul-25-18 09:15		Jul-25-18 09:20		Jul-25-18 09:25		Jul-25-18 09:30	
Chloride by EPA 300	***Extracted:***	Jul-31-18 08:15		Jul-31-18 08:15		Jul-31-18 08:15		Jul-31-18 08:15		Jul-31-18 08:30		Jul-31-18 08:30	
	Analyzed:	Jul-31-18 11:16		Jul-31-18 12:28		Jul-31-18 12:35		Jul-31-18 12:41		Jul-31-18 13:18		Jul-31-18 13:36	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		34.8	5.11	75.8	5.44	15.9	5.34	<5.33	5.33	114	5.18	524	5.48
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		2.80		8.71		7.30		7.17		4.08		9.30	

Debbie Simmons
Project Manager

Certificate of Analysis Summary 593692

GHD Services, INC- Midland, Midland, TX

Project Name: VGWU Satellite 4 (Sat-4)

Project Id: 074633
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-26-18 01:50 pm
Report Date: 09-AUG-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	593692-007		593692-008		593692-009		593692-010		593692-011		593692-013	
	Field Id:	SB-15-15'		SB-15-20'		SB-15-30'		SB-15-40'		SB-15-50'		SB-16-2'-4'	
	Depth:	15- ft		20- ft		30- ft		40- ft		50- ft		2-4 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-25-18 09:35		Jul-25-18 09:40		Jul-25-18 10:05		Jul-25-18 10:10		Jul-25-18 11:50		Jul-25-18 09:45	
Chloride by EPA 300	***Extracted:***	Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30	
	Analyzed:	Jul-31-18 13:43		Jul-31-18 13:49		Jul-31-18 13:55		Jul-31-18 14:13		Jul-31-18 14:20		Jul-31-18 14:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		736	26.4	884	5.53	1670	27.2	499	5.17	186	5.32	8.33	5.38
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		6.22		9.60		8.87		4.03		6.88		7.17	

Debbie Simmons
Project Manager

Certificate of Analysis Summary 593692

GHD Services, INC- Midland, Midland, TX

Project Name: VGWU Satellite 4 (Sat-4)

Project Id: 074633
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-26-18 01:50 pm
Report Date: 09-AUG-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	593692-014		593692-015		593692-016		593692-017		593692-018		593692-019	
	Field Id:	SB-16-10'		SB-16-15'		SB-16-20'		SB-17-2'-4'		SB-17-10'		SB-17-15'	
	Depth:	10- ft		15- ft		20- ft		2-4 ft		10- ft		15- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-25-18 09:50		Jul-25-18 09:55		Jul-25-18 10:00		Jul-25-18 10:15		Jul-25-18 10:20		Jul-25-18 10:25	
Chloride by EPA 300	***Extracted:***	Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30	
	Analyzed:	Jul-31-18 14:38		Jul-31-18 14:44		Jul-31-18 15:03		Jul-31-18 15:09		Jul-31-18 15:27		Jul-31-18 15:34	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		<5.47	5.47	<5.20	5.20	26.8	5.44	419	5.32	425	5.56	471	5.38
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00		Jul-26-18 15:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		9.16		4.73		8.04		6.76		10.3		7.67	

Debbie Simmons
Project Manager

Certificate of Analysis Summary 593692

GHD Services, INC- Midland, Midland, TX

Project Name: VGWU Satellite 4 (Sat-4)

Project Id: 074633
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-26-18 01:50 pm
Report Date: 09-AUG-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	593692-020		593692-021		593692-022		593692-023		593692-024		593692-025	
	Field Id:	SB-17-20'		SB-17-30'		SB-17-40'		SB-17-50'		SB-17-60'		SB-17-70'	
	Depth:	20- ft		30- ft		40- ft		50- ft		60- ft		70- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-25-18 10:30		Jul-25-18 10:35		Jul-25-18 10:40		Jul-25-18 10:45		Jul-25-18 11:10		Jul-25-18 11:15	
Chloride by EPA 300	***Extracted:***	Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 08:30		Jul-31-18 11:30	
	Analyzed:	Jul-31-18 15:40		Jul-31-18 15:46		Jul-31-18 15:52		Jul-31-18 15:58		Jul-31-18 16:05		Jul-31-18 17:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		851	5.49	1080	5.49	1490	27.7	2790	26.5	2540	26.4	2480	26.5
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		9.47		9.14		9.70		6.45		5.81		6.45	

Debbie Simmons
Project Manager

Certificate of Analysis Summary 593692

GHD Services, INC- Midland, Midland, TX

Project Name: VGWU Satellite 4 (Sat-4)

Project Id: 074633
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-26-18 01:50 pm
Report Date: 09-AUG-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	593692-026		593692-027		593692-028		593692-029		593692-030		593692-031	
	Field Id:	SB-17-80'		SB-17-90'		SB-18-2'-4'		SB-18-10'		SB-18-15'		SB-18-20'	
	Depth:	80- ft		90- ft		2-4 ft		10- ft		15- ft		20- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-25-18 11:20		Jul-25-18 11:25		Jul-25-18 10:50		Jul-25-18 10:55		Jul-25-18 11:00		Jul-25-18 11:05	
Chloride by EPA 300	***Extracted:***	Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30	
	Analyzed:	Jul-31-18 17:06		Jul-31-18 17:12		Jul-31-18 16:42		Jul-31-18 17:29		Jul-31-18 17:49		Jul-31-18 17:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2190	26.4	1060	5.33	215	5.18	351	5.44	297	5.42	38.7	5.14
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		6.41		7.04		4.28		8.53		7.77		3.50	

Debbie Simmons
Project Manager

Certificate of Analysis Summary 593692

GHD Services, INC- Midland, Midland, TX

Project Name: VGWU Satellite 4 (Sat-4)

Project Id: 074633
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-26-18 01:50 pm
Report Date: 09-AUG-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	593692-032		593692-033		593692-034		593692-035		593692-036		593692-037	
	Field Id:	SB-19-2'-4'		SB-19-10'		SB-19-15'		SB-19-20'		SB-13-2'-4'		SB-13-10'	
	Depth:	2-4 ft		10- ft		15- ft		20- ft		2-4 ft		10- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jul-25-18 11:30		Jul-25-18 11:35		Jul-25-18 11:40		Jul-25-18 11:45		Jul-25-18 12:00		Jul-25-18 12:05	
Chloride by EPA 300	***Extracted:***	Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30		Jul-31-18 11:30	
	Analyzed:	Jul-31-18 18:03		Jul-31-18 18:09		Jul-31-18 18:16		Jul-31-18 18:23		Jul-31-18 18:43		Jul-31-18 18:50	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		135	5.17	106	5.46	56.6	6.16	23.4	5.20	221	5.26	49.6	5.87
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00		Jul-26-18 16:00	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		4.16		8.66		19.2		4.77		4.86		15.3	

Debbie Simmons
Project Manager

Certificate of Analysis Summary 593692

GHD Services, INC- Midland, Midland, TX

Project Name: VGWU Satellite 4 (Sat-4)

Project Id: 074633
Contact: Scott Foord
Project Location: Lovington, NM

Date Received in Lab: Thu Jul-26-18 01:50 pm
Report Date: 09-AUG-18
Project Manager: Debbie Simmons

Analysis Requested													
	Lab Id:	593692-038				593692-039							
	Field Id:	SB-13-15'				SB-13-20'							
	Depth:	15- ft				20- ft							
	Matrix:	SOIL				SOIL							
	Sampled:	Jul-25-18 12:10				Jul-25-18 12:15							
Chloride by EPA 300	***Extracted:***	Jul-31-18 11:30				Jul-31-18 11:30							
	Analyzed:	Jul-31-18 19:10				Jul-31-18 19:16							
	Units/RL:	mg/kg	RL			mg/kg	RL						
Chloride		29.0	5.57			16.7	5.39						
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-26-18 16:00				Jul-26-18 16:00							
	Units/RL:	%	RL			%	RL						
Percent Moisture		10.4				7.64							

Debbie Simmons
Project Manager

Analytical Report 593692

for

GHD Services, INC- Midland

Project Manager: Scott Foord

VGWU Satellite 4 (Sat-4)

074633

09-AUG-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-26), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), 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 (T104704400-18-15)
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)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

09-AUG-18

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

Reference: XENCO Report No(s): **593692**
VGWU Satellite 4 (Sat-4)
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) 593692. 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. 593692 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Debbie Simmons
Project Manager

Sample Cross Reference 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SB-14-4'	S	07-25-18 09:05	4 ft	593692-001
SB-14-10'	S	07-25-18 09:10	10 ft	593692-002
SB-14-15'	S	07-25-18 09:15	15 ft	593692-003
SB-14-20'	S	07-25-18 09:20	20 ft	593692-004
SB-15-2'-4'	S	07-25-18 09:25	2 - 4 ft	593692-005
SB-15-10'	S	07-25-18 09:30	10 ft	593692-006
SB-15-15'	S	07-25-18 09:35	15 ft	593692-007
SB-15-20'	S	07-25-18 09:40	20 ft	593692-008
SB-15-30'	S	07-25-18 10:05	30 ft	593692-009
SB-15-40'	S	07-25-18 10:10	40 ft	593692-010
SB-15-50'	S	07-25-18 11:50	50 ft	593692-011
SB-16-2'-4'	S	07-25-18 09:45	2 - 4 ft	593692-013
SB-16-10'	S	07-25-18 09:50	10 ft	593692-014
SB-16-15'	S	07-25-18 09:55	15 ft	593692-015
SB-16-20'	S	07-25-18 10:00	20 ft	593692-016
SB-17-2'-4'	S	07-25-18 10:15	2 - 4 ft	593692-017
SB-17-10'	S	07-25-18 10:20	10 ft	593692-018
SB-17-15'	S	07-25-18 10:25	15 ft	593692-019
SB-17-20'	S	07-25-18 10:30	20 ft	593692-020
SB-17-30'	S	07-25-18 10:35	30 ft	593692-021
SB-17-40'	S	07-25-18 10:40	40 ft	593692-022
SB-17-50'	S	07-25-18 10:45	50 ft	593692-023
SB-17-60'	S	07-25-18 11:10	60 ft	593692-024
SB-17-70'	S	07-25-18 11:15	70 ft	593692-025
SB-17-80'	S	07-25-18 11:20	80 ft	593692-026
SB-17-90'	S	07-25-18 11:25	90 ft	593692-027
SB-18-2'-4'	S	07-25-18 10:50	2 - 4 ft	593692-028
SB-18-10'	S	07-25-18 10:55	10 ft	593692-029
SB-18-15'	S	07-25-18 11:00	15 ft	593692-030
SB-18-20'	S	07-25-18 11:05	20 ft	593692-031
SB-19-2'-4'	S	07-25-18 11:30	2 - 4 ft	593692-032
SB-19-10'	S	07-25-18 11:35	10 ft	593692-033
SB-19-15'	S	07-25-18 11:40	15 ft	593692-034
SB-19-20'	S	07-25-18 11:45	20 ft	593692-035
SB-13-2'-4'	S	07-25-18 12:00	2 - 4 ft	593692-036
SB-13-10'	S	07-25-18 12:05	10 ft	593692-037
SB-13-15'	S	07-25-18 12:10	15 ft	593692-038
SB-13-20'	S	07-25-18 12:15	20 ft	593692-039
SB-15-60'	S	07-25-18 11:55	60 ft	Not Analyzed
SB-13-30'	S	07-25-18 12:20	30 ft	Not Analyzed
SB-13-40'	S	07-25-18 12:25	40 ft	Not Analyzed
SB-13-50'	S	07-25-18 12:30	50 ft	Not Analyzed

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-14-4'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-001	Date Collected:	07.25.18 09.05	Sample Depth:	4 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	2.8
Analyst:	SCM	Date Prep:	07.31.18 08.15	Basis:	Dry Weight
Seq Number:	3058500				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**34.8**	5.11	mg/kg	07.31.18 11.16		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-14-10'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-002	Date Collected:	07.25.18 09.10	Sample Depth:	10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	8.71
Analyst:	SCM	Date Prep:	07.31.18 08.15	Basis:	Dry Weight
Seq Number:	3058500				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**75.8**	5.44	mg/kg	07.31.18 12.28		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-14-15'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-003	Date Collected:	07.25.18 09.15	Sample Depth:	15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	7.3
Analyst:	SCM	Date Prep:	07.31.18 08.15	Basis:	Dry Weight
Seq Number:	3058500				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**15.9**	5.34	mg/kg	07.31.18 12.35		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-14-20'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-004	Date Collected:	07.25.18 09.20	Sample Depth:	20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	7.17
Analyst:	SCM	Date Prep:	07.31.18 08.15	Basis:	Dry Weight
Seq Number:	3058500				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.33	5.33	mg/kg	07.31.18 12.41	U	1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-15-2'-4'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-005	Date Collected:	07.25.18 09.25	Sample Depth:	2 - 4 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	4.08
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**114**	5.18	mg/kg	07.31.18 13.18		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-15-10'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-006	Date Collected:	07.25.18 09.30	Sample Depth:	10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	9.3
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**524**	5.48	mg/kg	07.31.18 13.36		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-15-15'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-007	Date Collected:	07.25.18 09.35	Sample Depth:	15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.22
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**736**	26.4	mg/kg	07.31.18 13.43		5

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GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-15-20'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-008	Date Collected:	07.25.18 09.40	Sample Depth:	20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	9.6
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**884**	5.53	mg/kg	07.31.18 13.49		1

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GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-15-30'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-009	Date Collected:	07.25.18 10.05	Sample Depth:	30 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	8.87
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1670**	27.2	mg/kg	07.31.18 13.55		5

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GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-15-40'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-010	Date Collected:	07.25.18 10.10	Sample Depth:	40 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	4.03
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**499**	5.17	mg/kg	07.31.18 14.13		1

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GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-15-50'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-011	Date Collected:	07.25.18 11.50	Sample Depth:	50 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.88
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**186**	5.32	mg/kg	07.31.18 14.20		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-16-2'-4'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-013	Date Collected:	07.25.18 09.45	Sample Depth:	2 - 4 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	7.17
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**8.33**	5.38	mg/kg	07.31.18 14.32		1

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GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-16-10'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-014	Date Collected:	07.25.18 09.50	Sample Depth:	10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	9.16
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.47	5.47	mg/kg	07.31.18 14.38	U	1

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GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-16-15'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-015	Date Collected:	07.25.18 09.55	Sample Depth:	15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	4.73
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.20	5.20	mg/kg	07.31.18 14.44	U	1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-16-20'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-016	Date Collected:	07.25.18 10.00	Sample Depth:	20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	8.04
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**26.8**	5.44	mg/kg	07.31.18 15.03		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-2'-4'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-017	Date Collected:	07.25.18 10.15	Sample Depth:	2 - 4 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.76
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**419**	5.32	mg/kg	07.31.18 15.09		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-10'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-018	Date Collected:	07.25.18 10.20	Sample Depth:	10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	10.25
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**425**	5.56	mg/kg	07.31.18 15.27		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-15'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-019	Date Collected:	07.25.18 10.25	Sample Depth:	15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	7.67
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**471**	5.38	mg/kg	07.31.18 15.34		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-20'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-020	Date Collected:	07.25.18 10.30	Sample Depth:	20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	9.47
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**851**	5.49	mg/kg	07.31.18 15.40		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-30'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-021	Date Collected:	07.25.18 10.35	Sample Depth:	30 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	9.14
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1080**	5.49	mg/kg	07.31.18 15.46		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-40'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-022	Date Collected:	07.25.18 10.40	Sample Depth:	40 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	9.7
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1490**	27.7	mg/kg	07.31.18 15.52		5

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-50'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-023	Date Collected:	07.25.18 10.45	Sample Depth:	50 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.45
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2790**	26.5	mg/kg	07.31.18 15.58		5

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-60'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-024	Date Collected:	07.25.18 11.10	Sample Depth:	60 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	5.81
Analyst:	SCM	Date Prep:	07.31.18 08.30	Basis:	Dry Weight
Seq Number:	3058503				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2540**	26.4	mg/kg	07.31.18 16.05		5

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-70'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-025	Date Collected:	07.25.18 11.15	Sample Depth:	70 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.45
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2480**	26.5	mg/kg	07.31.18 17.00		5

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GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-80'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-026	Date Collected:	07.25.18 11.20	Sample Depth:	80 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	6.41
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2190**	26.4	mg/kg	07.31.18 17.06		5

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-17-90'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-027	Date Collected:	07.25.18 11.25	Sample Depth:	90 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	7.04
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1060**	5.33	mg/kg	07.31.18 17.12		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-18-2'-4'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-028	Date Collected:	07.25.18 10.50	Sample Depth:	2 - 4 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	4.28
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**215**	5.18	mg/kg	07.31.18 16.42		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-18-10'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-029	Date Collected:	07.25.18 10.55	Sample Depth:	10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	8.53
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**351**	5.44	mg/kg	07.31.18 17.29		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-18-15'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-030	Date Collected:	07.25.18 11.00	Sample Depth:	15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	7.77
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**297**	5.42	mg/kg	07.31.18 17.49		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-18-20'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-031	Date Collected:	07.25.18 11.05	Sample Depth:	20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	3.5
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**38.7**	5.14	mg/kg	07.31.18 17.56		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-19-2'-4'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-032	Date Collected:	07.25.18 11.30	Sample Depth:	2 - 4 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	4.16
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**135**	5.17	mg/kg	07.31.18 18.03		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-19-10'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-033	Date Collected:	07.25.18 11.35	Sample Depth:	10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	8.66
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**106**	5.46	mg/kg	07.31.18 18.09		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-19-15'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-034	Date Collected:	07.25.18 11.40	Sample Depth:	15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	19.21
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**56.6**	6.16	mg/kg	07.31.18 18.16		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-19-20'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-035	Date Collected:	07.25.18 11.45	Sample Depth:	20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	4.77
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**23.4**	5.20	mg/kg	07.31.18 18.23		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-13-2'-4'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-036	Date Collected:	07.25.18 12.00	Sample Depth:	2 - 4 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	4.86
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**221**	5.26	mg/kg	07.31.18 18.43		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-13-10'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-037	Date Collected:	07.25.18 12.05	Sample Depth:	10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	15.29
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**49.6**	5.87	mg/kg	07.31.18 18.50		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-13-15'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-038	Date Collected:	07.25.18 12.10	Sample Depth:	15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	10.39
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**29.0**	5.57	mg/kg	07.31.18 19.10		1

Certificate of Analytical Results 593692

GHD Services, INC- Midland, Midland, TX

VGWU Satellite 4 (Sat-4)

Sample Id:	**SB-13-20'**	Matrix:	Soil	Date Received:	07.26.18 13.50
Lab Sample Id:	593692-039	Date Collected:	07.25.18 12.15	Sample Depth:	20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	7.64
Analyst:	SCM	Date Prep:	07.31.18 11.30	Basis:	Dry Weight
Seq Number:	3058577				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**16.7**	5.39	mg/kg	07.31.18 19.16		1

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 593692

GHD Services, INC- Midland

VGWU Satellite 4 (Sat-4)

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058500 Matrix: Solid Date Prep: 07.31.18
MB Sample Id: 7659380-1-BLK LCS Sample Id: 7659380-1-BKS LCSD Sample Id: 7659380-1-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	239	96	242	97	90-110	1	20	mg/kg	07.31.18 09:37	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058503 Matrix: Solid Date Prep: 07.31.18
MB Sample Id: 7659381-1-BLK LCS Sample Id: 7659381-1-BKS LCSD Sample Id: 7659381-1-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	245	98	253	101	90-110	3	20	mg/kg	07.31.18 13:05	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058577 Matrix: Solid Date Prep: 07.31.18
MB Sample Id: 7659420-1-BLK LCS Sample Id: 7659420-1-BKS LCSD Sample Id: 7659420-1-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	251	100	250	100	90-110	0	20	mg/kg	07.31.18 16:29	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058500 Matrix: Soil Date Prep: 07.31.18
Parent Sample Id: 593648-015 MS Sample Id: 593648-015 S MSD Sample Id: 593648-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.97	249	240	96	243	98	90-110	1	20	mg/kg	07.31.18 09:56	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058500 Matrix: Soil Date Prep: 07.31.18
Parent Sample Id: 593692-001 MS Sample Id: 593692-001 S MSD Sample Id: 593692-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	34.8	256	290	100	292	100	90-110	1	20	mg/kg	07.31.18 11:22	

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

QC Summary 593692

GHD Services, INC- Midland

VGWU Satellite 4 (Sat-4)

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058503 Matrix: Soil Date Prep: 07.31.18
Parent Sample Id: 593692-005 MS Sample Id: 593692-005 S MSD Sample Id: 593692-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	114	259	369	98	374	100	90-110	1	20	mg/kg	07.31.18 13:24	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058503 Matrix: Soil Date Prep: 07.31.18
Parent Sample Id: 593692-015 MS Sample Id: 593692-015 S MSD Sample Id: 593692-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.20	260	281	108	280	108	90-110	0	20	mg/kg	07.31.18 14:50	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058577 Matrix: Soil Date Prep: 07.31.18
Parent Sample Id: 593692-028 MS Sample Id: 593692-028 S MSD Sample Id: 593692-028 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	215	259	490	106	481	103	90-110	2	20	mg/kg	07.31.18 16:48	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3058577 Matrix: Soil Date Prep: 07.31.18
Parent Sample Id: 593692-035 MS Sample Id: 593692-035 S MSD Sample Id: 593692-035 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	23.4	260	300	106	300	106	90-110	0	20	mg/kg	07.31.18 18:30	

Analytical Method: **Percent Moisture**
Seq Number: 3057905 Matrix: Solid
MB Sample Id: 3057905-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<	%	07.26.18 14:00	

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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QC Summary 593692

GHD Services, INC- Midland

VGWU Satellite 4 (Sat-4)

Analytical Method: **Percent Moisture**
Seq Number: 3057939 Matrix: Solid
MB Sample Id: 3057939-1-BLK

Parameter	MB Result		Units	Analysis Date	Flag
Percent Moisture	<		%	07.26.18 16:00	

Analytical Method: **Percent Moisture**
Seq Number: 3057905 Matrix: Soil
Parent Sample Id: 593678-001 MD Sample Id: 593678-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	31.0	30.5	2	20	%	07.26.18 14:00	

Analytical Method: **Percent Moisture**
Seq Number: 3057905 Matrix: Soil
Parent Sample Id: 593692-019 MD Sample Id: 593692-019 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	7.67	7.71	1	20	%	07.26.18 15:00	

Analytical Method: **Percent Moisture**
Seq Number: 3057939 Matrix: Soil
Parent Sample Id: 593692-020 MD Sample Id: 593692-020 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	9.47	9.47	0	20	%	07.26.18 16:00	

Analytical Method: **Percent Moisture**
Seq Number: 3057939 Matrix: Soil
Parent Sample Id: 593692-039 MD Sample Id: 593692-039 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	7.64	7.66	0	20	%	07.26.18 16:00	

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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Dallas Texas (214-902-0300)

Service Center - San Antonio, Texas (210-509-3334)

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Odessa, Texas (432-563-1800) Lakeland, Florida (863-646-8526)

Norcross, Georgia (770-449-8800) Tampa, Florida (813-620-2000)

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Xenco Quote #

Xenco Job # 593692

Client / Reporting Information

Company Name / Branch: GHD

Company Address:

Email: william.foord@ghd.com Christopher.Knight@GHD.com

Phone No: 512-506-8803

Project Contact: Scott Foord Christopher Knight

Samplers's Name: Jennifer Stoffel

Project Information

Project Name/Number: VGWU Satellite 4 (Sat-4)/ 074633

Project Location: Lovington, New Mexico

Invoice To:

PO Number:

Analytical Information

No.	Field ID / Point of Collection	Sample Depth	Collection Date	Collection Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chloride	% Moisture									Field Comments
1	SB-14-4'	4'	7/25	0905	S	1								1	X	X									
2	SB-14-10'	10'	↓	0910	↓	↓								↓	↓	↓									
3	SB-14-15'	15'		0915																					
4	SB-14-20'	20'		0920																					
5	SB-15-2'-4'	2'-4'		0925																					
6	SB-15-10'	10'		0930																					
7	SB-15-15'	15'		0935																					
8	SB-15-20'	20'		0940																					
9	SB-15-30'	30'		1005																					
10	SB-15-40'	40'	↓	1010	↓	↓								↓	↓	↓									

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

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

Notes: Contact Scott Foord w/ ques.

FED-EX / UPS: Tracking #

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

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Jennifer Stoffel	7/26/18 1350	1 [signature]	2		2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice X / Cooler Temp. 5.7 / Thermo. Corr. Factor R8 0

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

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Norcross, Georgia (770-449-8800)

Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

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Xenco Quote #

Xenco Job # 593692

Client / Reporting Information

Company Name / Branch: GHD

Company Address:

Email: william.foord@ghd.com; Christopher.Knight@GHD.com

Phone No: 512-506-8803

Project Contact: Scott Foord, Christopher Knight

Samplers's Name: Jennifer Stoffel

Project Information

Project Name/Number: VGWU Satellite 4 (Sat-4)/ 074633

Project Location: Lovington, New Mexico

Invoice To:

PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chloride	% Moisture	Field Comments
1	SB-15-50'	50'	7/25	1150	S	1								1	X	X	
2	SB-15-60'	60'		1155													HOLD
3	SB-16-2'-4'	2'-4'		0945													
4	SB-16-10'	10'		0950													
5	SB-16-15'	15'		0955													
6	SB-16-20'	20'		1000													
7	SB-17-2'-4'	2'-4'		1015													
8	SB-17-10'	10'		1020													
9	SB-17-15'	15'		1025													
10	SB-17-20'	20'	↓	1030	↓	↓								↓	↓	↓	

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:

Contact Scott Foord w/ques.

Hold SB-15-60' pending results of SB-15-50'

FED-EX / UPS: Tracking #

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

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Jennifer Stoffel	7/26/18 1350		2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable ☐	On Ice ☒ Cooler Temp. 5.7 Thermo. Corr. Factor R8
			5			

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

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Lakeland, Florida (863-646-8526)

Tampa, Florida (813-620-2000)

www.xenco.com

Xenco Quote #

Xenco Job # 593692

Client / Reporting Information

Company Name / Branch: GHD

Company Address:

Email: william.foord@ghd.com, Christopher.Knight@GHD.com

Phone No: 512-506-8803

Project Contact: Scott Foord, Christopher Knight

Samplers's Name: Jennifer Stoffel

Project Information

Project Name/Number: VGWU Satellite 4 (Sat-4)/ 074633

Project Location: Lovington, New Mexico

Invoice To:

PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Chloride	% Moisture	Field Comments
1	SB-17-30'	30'	7/25	1035	S	1								1	X	X	
2	SB-17-40'	40'		1040													
3	SB-17-50'	50'		1045													
4	SB-17-60'	60'		1110													
5	SB-17-70'	70'		1115													
6	SB-17-80'	80'		1120													
7	SB-17-90'	90'		1125													
8	SB-18-2'-4'	2-4'		1050													
9	SB-18-10'	10'		1055													
10	SB-18-15'	15'		1100													

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

Notes: Contact Scott Foord w/ques

FED-EX / UPS: Tracking #

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

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Jennifer Stoffel	7/26/18 1350		2		2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: X

Cooler Temp. 5.7 Thermo. Corr. Factor RS Ø

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

CHAIN OF CUSTODY

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)

Odessa, Texas (432-563-1800)

Norcross, Georgia (770-449-8800)

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1	SB-18-20'	20'	7/25	1105	S	1								1	X	X	
2	SB-19-2'-4'	2'-4'		1130													
3	SB-19-10'	10'		1135													
4	SB-19-15'	15'		1140													
5	SB-19-20'	20'		1145													
6	SB-13-2'-4'	2'-4'		1200													
7	SB-13-10'	10'		1205													
8	SB-13-15'	15'		1210													
9	SB-13-20'	20'		1215													
10	SB-13-30'	30'	↓	1220	↓	↓								↓	↓	↓	HOLD

Turnaround Time (Business days)

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- ☐ Level 3 (CLP Forms)
- ☐ TRRP Checklist
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ TRRP Level IV
- ☐ UST / RG -411

Notes:

Contact Scott Foord w/ques.

Hold SB-13-30' pending results of SB-13-20'

FED-EX / UPS: Tracking #

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

	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Jennifer Stoppel	7/26/18 1350		2		2
3			3	4		4
5			5	Custody Seal #	Preserved where applicable	On Ice: ☒ Cooler Temp. 5.7 Thermo. Corr. Factor R8 0

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

CHAIN OF CUSTODY

Page 5 of 5

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2	SB-13-50'	50'	7/25	1230	S	1								1	X	X	HOLD
3																	
4																	
5																	
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- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Notes:

Contact Scott Ford w/ glus.

Hold SB-13-40' & SB-13-50'

Pending results of 20' sample

FED-EX / UPS: Tracking #

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

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Jennifer Stoffel	7/26/18 1350		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 ☒

Cooler Temp. 5.7 Thermo. Corr. Factor R8 0

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

Final 1.000

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 07/26/2018 01:50:00 PM

Work Order #: 593692

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)?	5.7
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**No**
#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: Shawnee Gomez Date: 07/26/2018

Checklist reviewed by: Mike Kimmel Date: 08/03/2018

Appendix C
2018 Remediation Work Plan

October 15, 2018 Reference No. 074633

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

Re: 2018 Remediation Work Plan
VGWU SAT No. 4 Injection Trunkline Release (RP-3941)
Lea County, New Mexico

Dear Ms. Yu:

1. Project Information

The Site is located in Unit B, Section 1, Township 18 South, Range 34 East, approximately 1.38-miles southwest of Buckeye, New Mexico, in eastern Lea County. Chevron submitted an initial C-141 Form to the New Mexico Oil Conservation Division (NMOCD) dated March 6, 2009 describing a release of 29 barrels (bbls) of produced water with zero (0) volume being recovered; stating, "No remediation will be done at this time because drilling rig is operating on location (VGSAU #459)." The source of the release was recorded to have been a line leak.

2. NMOCD Closure Requirement Criteria for Soils

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

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

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

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

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

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

Localized depth to groundwater was confirmed to be approximately 130 feet below ground surface (bgs) in 2018 based on the information from monitoring well MW-12 associated with the Buckeye Compressor Station facility and VGSAU 58 (AP-104) located approximately 300-feet east of the Site (both sites monitored by GHD - see Figure 1). Additionally, information available from various sources including the Petroleum Recovery Research Center (PRRC) Mapping Portal, currently managed groundwater site(s) data by GHD, and the United States Geological Survey (USGS) Current Water Database for the Nation, concludes:

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

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

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

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

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

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

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

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

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

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

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

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

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

Evaluation of the analytical data obtained from soil assessment and delineation activities performed from 2014 through 2018 indicate horizontal and vertical delineation of chloride impacts has been achieved at the Site to support remediation activities (excavation and lining of the area).

3. 2018 Scope of Work

The scope of work for this project in 2018 will involve soil remediation activities inclusive of excavation, sampling, lining the excavation, backfilling, and restoration (re-seeding of off-pad areas) of the impacted area (see Figure 1).

Chloride impacted caliche well pad material and soil will be excavated accompanied by confirmation soil sample analysis. Field screening of soils for chlorides will be performed in order to guide excavation activities. Subsequently, the excavation will be lined, backfilled with clean caliche material and soil, graded and contoured to ensure proper surface area drainage, and the soil (off-pad areas) fertilized and re-seeded. The following outlines basic project details that will be completed by GHD and GHD subcontractors.

Field Program

- Prior to mobilizing excavation equipment to the Site, a New Mexico 811 utility notification will be made at least 48-hours prior to mobilization.
- In addition to the utility locate, data from the geophysical survey conducted prior to 2018 drilling activities will be re-evaluated for the proposed excavation area.
- Following all utility clearance activities, a Chevron Dig Plan will be prepared and approved by Chevron prior to performing any excavation activities.
- Underground utilities in proximity to the proposed excavation area will be day-lighted via hydroexcavation prior to remedial excavation activities.
- GHD anticipates that pipeline operators will not allow excavation within 10 feet of any pipelines, therefore remediation within these areas will be deferred until operations of the pipelines cease.
- Approximately 8,200 cubic yards (cy) of shallow sub-surface area consisting of caliche well pad materials and off-pad soil areas will be excavated (Figure 1). Impacted soil in the affected area will be excavated until field screening indicates that the soil is below the limit for chloride (600 mg/kg) specified in NMMAC 19.15.29.13 D (1), or until a depth of 4 feet bgs is reached.
- Soils will be field screened for chloride during excavation activities utilizing Hach chloride test strips. Soils with field test results greater than 3,000 mg/kg chloride with be transported to an approved disposal facility. If field screening indicates that soils are below 3,000 mg/kg chloride, it will be segregated into 50-100 cy stockpiles and a 5-point composite sample will be collected and analyzed for chloride by EPA Method 300. Soils with analytical results above 600 mg/kg will be transported to the R360 facility located in Hobbs, New Mexico for disposal. Stockpiled soils with analytical results below 600 mg/kg will be further consolidated on-site for use as backfill.

- Five-point composite confirmation soil samples will be collected from the excavation floor and sidewalls at 200 square feet intervals for analysis of chloride by EPA Method 300. Lateral limits of the excavation will halt once confirmation sample analytical results are 600 mg/kg chloride or less.
- If impacts appear to extend past four feet bgs, the sides of the excavation will be sloped and a 20-mil polyethylene liner will be placed in the bottom of the excavation. Liner seams will be overlapped a minimum of 24 inches. Each liner will be placed without rips or tears.
- The excavation will be backfilled with caliche and soil from an off-site borrow pit (Pearce Ranch Trust) to grade.
- The disturbed off-pad area will be fertilized and re-seeded with a Bureau of Land Management-approved seed mix.

Quality Assurance/ Quality Control

Confirmation soil sampling will be completed in accordance with our standard Quality Assurance/ Quality Control procedures designed to minimize cross-contamination between samples and to provide reliable laboratory results.

Reporting

A report summarizing remediation activities will be submitted. The report will include a Site description, project history, description of field events, a discussion of results, and recommendations (if any).

The report will include:

- A scaled Site plan showing the locations of the excavation and other Site features;
- Tabulation of field screening and laboratory analytical results; and
- Geotagged photographic documentation of field activities.

Vegetation Monitoring

Following completion of soil remediation activities at the Site, and as required by the New Mexico State Land Office (NMSLO), GHD will conduct vegetation monitoring visits to the Site. The status of vegetative growth within the remediated area will be documented with photographs and in field notes during each visit. A closure request report will be completed following one year of monitoring for submittal to NMSLO.

4. Work Plan Approval Request

GHD is prepared to initiate the scope of work immediately. If you have any questions or comments with regards to this work plan, please do not hesitate to contact our Houston office at (713) 734-3090. Your timely response to this correspondence is appreciated.

Sincerely,

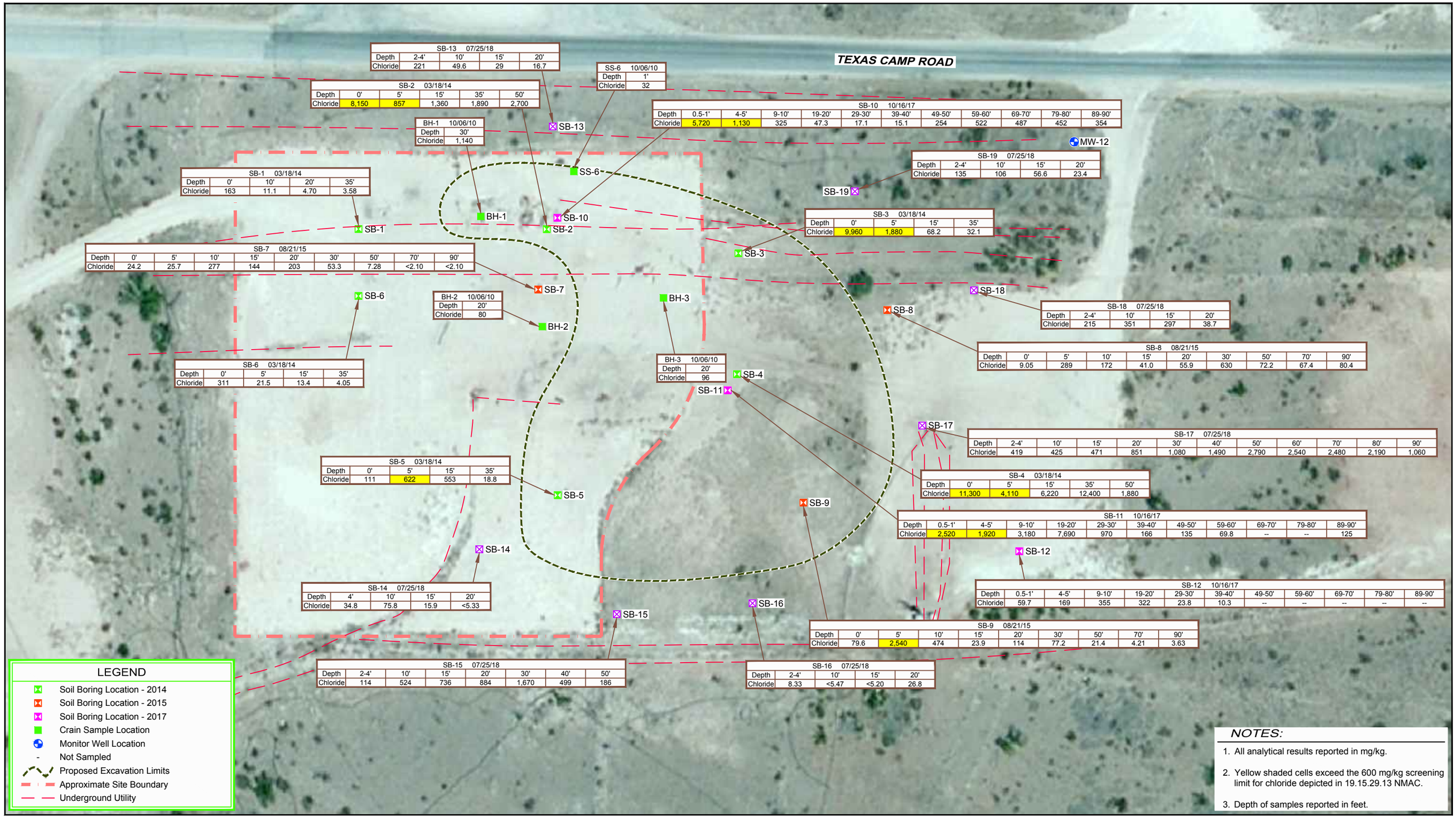
GHD

Scott Foord, P.G.
Project Manager

SF/mw/1

Encl.

Attachment: Figure 1 – Proposed Excavation Map



Source: USDA FSA Imagery, May 10, 2014

LAT/LONG: 32.7827° NORTH, 103.5106° WEST

0 20 60ft

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

Sample ID — SB-11 — 10/16/17 — Sample Date
Depth — 0.5-1' — Sample Depth (ft)
Chloride — 2,520 — Sample Result (mg/kg)

CEMC
LEA COUNTY, NEW MEXICO
VGWU SATELLITE #4 TRUNK LINE

074633-2018
Oct 5, 2018

PROPOSED EXCAVATION AREA

FIGURE 1

CAD File: I:\CAD\Files\07----\074---\074633-VGWU Satellite #4 Trunkline\074633-2018\074633-2018(007)GN-DL002.dwg

about GHD

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

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