Robert Speer
Portfolio Manager,
Upstream Business Unit
Remediation Team

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

February 2, 2017

INFORMATION ONLY

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

Re: LPU 96 Site Assessment Report, RP#1665

Dear Ms. Yu:

Please find enclosed for your files copies of the following report for the Lovington Paddock Unit #96 produced water release project site.

- *LPU 96 – 2016 Soil Assessment and Delineation Report, Unit N - Section 3 – Township 16 South – Range 37 East, Lea County, NM*

This report was prepared by Conestoga-Rovers & Associates (CRA) on behalf of Chevron Environmental Management Company (CEMC) to document assessment activities for a release of 5 bbls of produced water from a failed flow line as documented in the initial C-141 submitted in November 2007. Soil sampling in the release area indicate that vertical and horizontal delineation of Chlorides and hydrocarbon components have not been achieved at the site.

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

Sincerely,

Rob Speer
Environmental Project Manager

January 26, 2017 Reference No. 073816-05

Mr. Rob Speer
Chevron Environmental Management Company
1400 Smith Street #07077
Houston, TX 77002

Re: Site Assessment Report
Chevron Lovington Paddock Unit 96
RP-1665
Unit N, Section 3, Township 16 South, Range 37 East
Lea County, New Mexico

Dear Mr. Speer:

1. Introduction

On behalf of Chevron Environmental Management Company (CEMC), GHD Services Inc. (GHD - formerly Conestoga-Rovers and Associates) has prepared this report summarizing monitoring well installation activities and groundwater sampling results at the Lovington Paddock Unit (LPU) 96 site (hereafter referred to as the "Site"). The Site is located approximately 5 miles southeast of Lovington in Lea County, New Mexico in Unit N, Section 3, Township 16 South, Range 37 East. The land surface is owned by the City of Lovington and the minerals are managed by the State of New Mexico. The location of the Site is presented on Figure 1 and Site details are shown on Figure 2.

Monitoring well MW-1 was installed in October 2016 to assess the potential for groundwater impacts at the Site. Soil analytical results reported for previous assessment activities conducted at the Site in September 2014 indicated chloride concentrations in the soil extending down to at least 80 feet below ground surface (ft bgs). The reported chloride concentrations in soil exceeded the Recommended Remedial Action Level (RRAL) for chlorides established by the New Mexico Oil Conservation Division (NMOCD).

2. Background

Chevron submitted a C-141 Form to the NMOCD dated November 19, 2007 reporting a release of 5 barrels of produced brine from a polyethylene flow line which occurred on November 16, 2007. The released brine had a chloride concentration of 35,300 parts per million (ppm) and impacted surface soil in an approximate 30-ft diameter area. Remediation permit RP-1665 was assigned to this release incident by the NMOCD Hobbs office.

GHD
6320 Rothway, Suite 100, Houston TX 77040 USA
T 7137343090 www.ghd.com

3. Remediation Standards

The NMOCD Ranking Criteria for soil and corresponding RRALs established by NMOCD are summarized in the table below. The chloride RRAL is based on draft NMOCD Guidance for Release Reporting and Corrective Actions document (September 30, 2011).

New Mexico Oil Conservation Division Site Assessment[1]	
Depth to Ground Water (50 ft - 99 ft)	10
Wellhead Protection Area (>1000 ft from water source, >200 ft from domestic source)	0
Distance to Surface Body Water (>1000 horizontal ft)	0
Ranking Criteria Total Score	**10***
Because the ranking criteria total score is 10, NMOCD established RRALs for soil are **10 ppm for benzene, 50 ppm for BTEX, 1000 ppm for total TPH, and 250 ppm for chlorides.*	

[1] NMOCD Guidance for Remediation of Leaks, Spills and Releases, August 13, 1993

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

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

NMWQCC groundwater standards do not include TPH.

4. Soil Assessment

Analytical results of surface soil samples collected by Tetra Tech at two locations on July 15, 2010 indicated no concentrations of total petroleum hydrocarbons (TPH); BTEX; or chloride at concentrations above laboratory detection limits. Results of trench samples collected at 1 to 2 ft bgs from the same two locations on August 18, 2010 also indicated no detections of chloride.

On January 11, 2011, CEMC and GHD met with the NMOCD and discussed results of the previous assessment activities performed by Tetra Tech. Based on the topics discussed, GHD submitted a closure request report and a data information packet to the NMOCD on January 13, 2011. NMOCD approved the proposed additional remedial activities included within the closure request report on April 13, 2011. From

November 11 to 19, 2013, approximately 248 cubic yards of impacted soils were excavated from the impacted area and confirmatory soil samples were collected from eight locations (Figure 2). Analytical results from seven locations indicated exceedances of the RRALs for BTEX, TPH and/or chlorides. Additional assessment activities were proposed that included the advancement of soil borings and, if the analytical results indicated potential for groundwater impacts, installation of groundwater monitoring wells.

On September 3 and 4, 2014, five soil borings (B-1 through B-5) were advanced to depths ranging from 30 to 80 ft bgs (Figure 2). Soil analytical results for benzene and total BTEX in all borings were below the RRALs (10 and 50 mg/kg, respectively). TPH exceedances of the RRAL (1000 mg/kg) extended to depths ranging from 5 to 10 ft bgs in two borings (B-1 and B-5, respectively), but were not detected at 40 ft bgs. Chloride exceeded the RRAL (250 mg/kg) in soil samples extending down to at least 40 ft bgs in borings B-4 and B-5, and to at least 80 ft bgs in boring B-1. As such, the vertical extent of chloride impact was not determined and impact to groundwater (chlorides) was suspected. BTEX, TPH, and chloride soil concentrations are depicted on Figure 3.

5. Monitoring Well Installation

Monitoring well MW-1 was installed on October 5, 2016 adjacent to soil boring B-1 where chloride impact extended to the total depth of 80 ft bgs (Figure 3). Prior to mobilizing drilling equipment to the Site, the boring location was marked and utility notifications were submitted. Ground penetrating radar (GPR) survey activities were also conducted across the Site for additional utility clearance. The boring location was cleared with a hydroexcavator to a depth of approximately 3 ft bgs before refusal was encountered. A mud-rotary drilling rig operated by GHD subcontractor White Drilling Company, a New Mexico-licensed water well driller, advanced the boring to a total depth of 240 ft bgs. During drilling, a GHD geologist observed soil cuttings at 10-ft intervals and recorded subsurface lithology on boring logs.

MW-1 was completed with four-inch diameter, schedule 40 polyvinyl chloride (PVC) casing, 130 ft of 0.010-inch PVC slotted screen, a 20/40 sand filter pack overlain by a bentonite seal extending up to 10 ft bgs, and riser casing extending above the ground surface. The well was completed at the surface with a stick-up protective casing set in an approximate 2 ft by 2 ft concrete pad. The well was developed by bailing and pumping.

Preliminary gauging data indicated that groundwater was present at approximately 96 feet below the top of casing. The well was developed by removal of sufficient volumes of water to clear the well casing and annulus of sediment. Very turbid water was removed with a 3-inch diameter bailer. Following bailing, well development was completed by pumping at 9 gallons per minute with a submersible pump. Approximately 330 gallons of water were removed during well development.

The boring log, well construction diagram, and the State Well Report are provided in Appendix A. The monitoring well will be professionally surveyed at a later date.

Soil cuttings, drilling fluids and well development water were contained in a lined roll-off mudbox. The drill cuttings/fluids and development water were transported as exploration and production (E&P) exempt

waste to a CEMC-approved disposal facility (i.e., Sundance Services, Inc. near Eunice New Mexico). Waste management documentation is provided in Appendix B.

6. Groundwater Sampling

Groundwater gauging was conducted and the vertical conductivity profile throughout the entire water column on MW-1 was determined prior to groundwater sampling activities. Equipment was decontaminated prior to gauging, profiling or sampling. The water level was measured to the nearest hundredth of a foot and conductivity was measured at 5-ft intervals within the water column. The static water level was measured at a depth of 98.18 feet below the casing rim, which corresponds to a few feet below the top of the well screen. The results of the conductivity profile are summarized on Table 1.

The well was then sampled utilizing a Hydrasleeve sampler. The groundwater sample was collected after the Hydrasleeve was lowered to the depth of the highest conductivity measurement (i.e., 160 ft below the casing rim). The sampler was removed from the well and the sample was placed in laboratory-supplied containers and chilled on ice in an insulated cooler. The sample was delivered under chain-of-custody documentation to Xenco Laboratories of Midland, Texas for analysis of BTEX by EPA method 8021B and chloride by EPA method 300.1.

7. Groundwater Analytical results

Groundwater analytical results of BTEX and chloride are summarized in Table 2 in reference to NMWQCC standards. Detected constituents consisted of benzene and chloride. The 0.00489 mg/L benzene concentration detected is below the 0.01 mg/L standard for benzene. The 772 mg/L chloride concentration detected exceeds the 250 mg/L standard for chloride. The detected constituents are presented in map view on Figure 4.

The laboratory analytical report is provided in Appendix C.

8. Path Forward

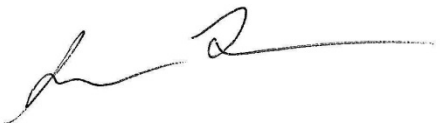
In order to further assess and delineate the extent of chloride impact to groundwater, four additional monitoring wells are proposed at locations identified on Figure 5. These proposed wells are intended to evaluate upgradient/background chloride concentrations and to assess chloride concentrations in groundwater at the Site. The wells will be professionally surveyed and the groundwater gradient will be determined.

Groundwater sampling for BTEX and chloride will be conducted following installation of the monitoring wells, and a groundwater assessment report will be completed summarizing monitoring and assessment results. The report will include tabulated analytical and gauging data, groundwater gradient and BTEX/chloride concentration maps, and recommendations for future assessment activities. The final

report will be submitted to NMOCD for review following completion of the proposed 2017 delineation and sampling activities.

Sincerely,

GHD



Scott Foord, P.G.,
Project Manager

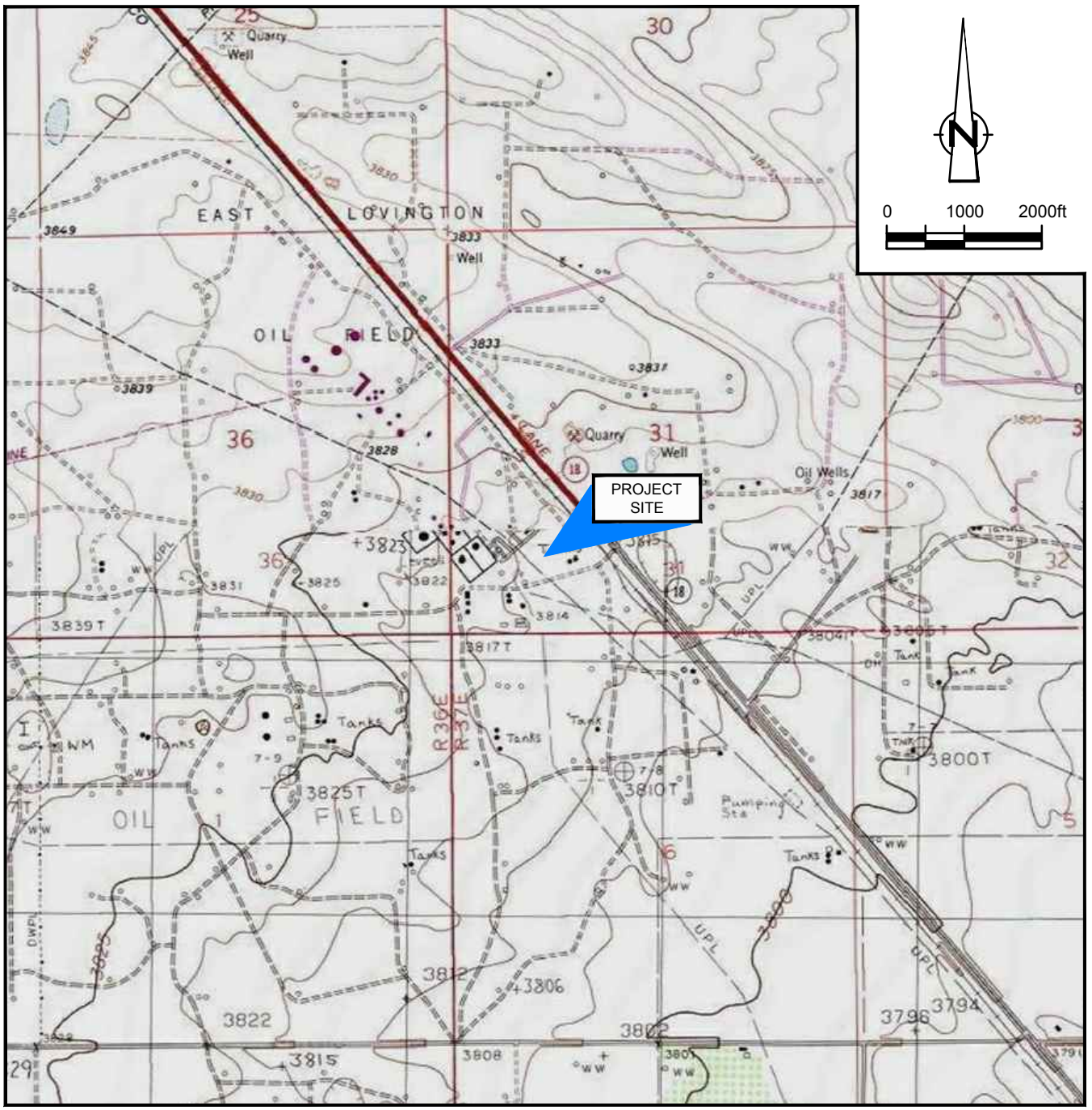
Bernard Bockisch,
Senior Project Manager

SF/ag/1

Encl.

cc:

Figures



SOURCE: USGS 7.5 MINUTE QUAD
"LOVINGTON SE AND LOVINGTON, NEW MEXICO"

LAT/LONG: 32.8741° NORTH, 103.2953° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

Figure 1

SITE LOCATION MAP
LOVINGTON PADDOCK UNIT 96
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

GHD

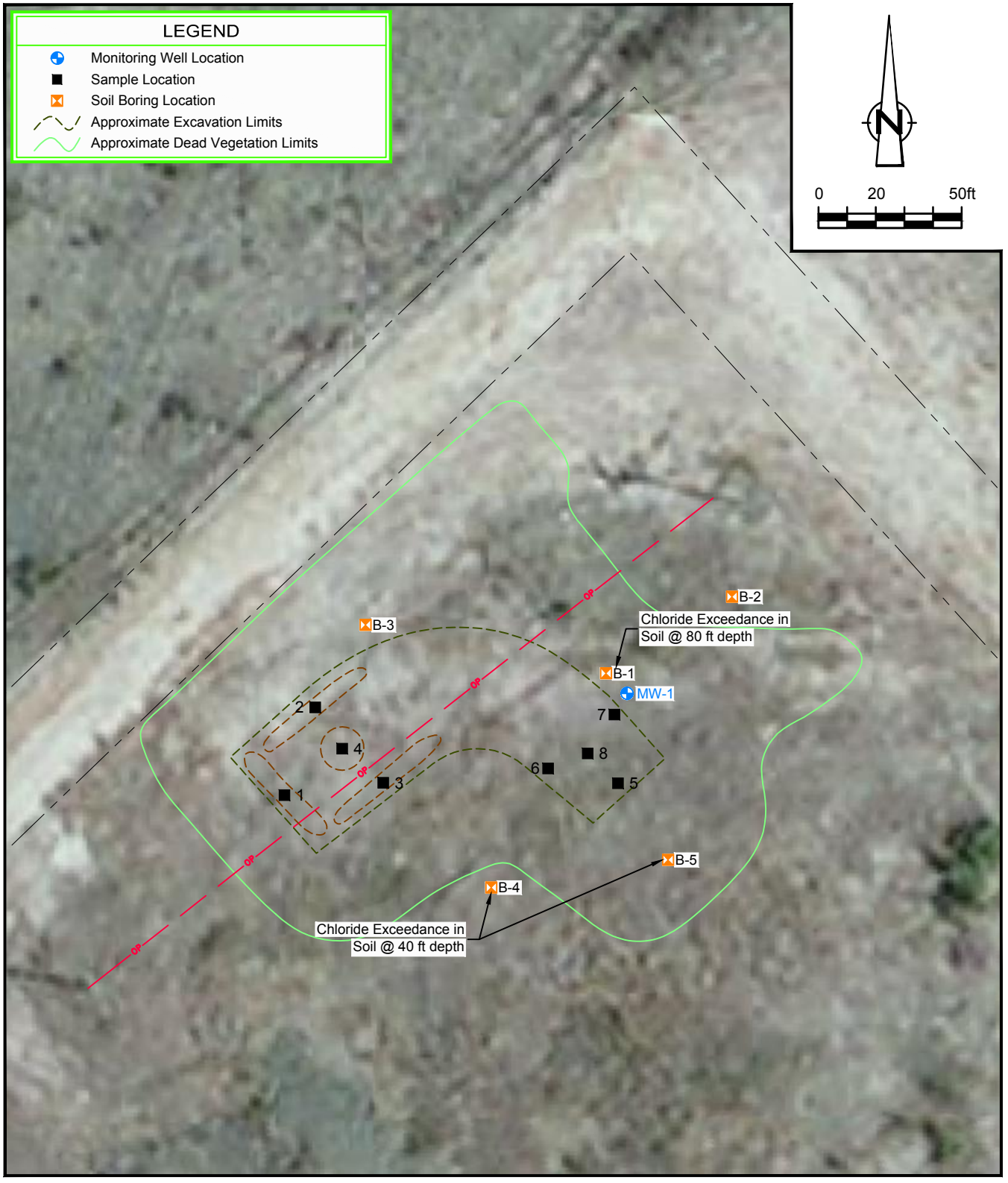


Figure 2

SITE DETAILS MAP
LOVINGTON PADDOCK UNIT 96
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

GHD

073816-00(005)GN-DL002 JAN 12, 2017

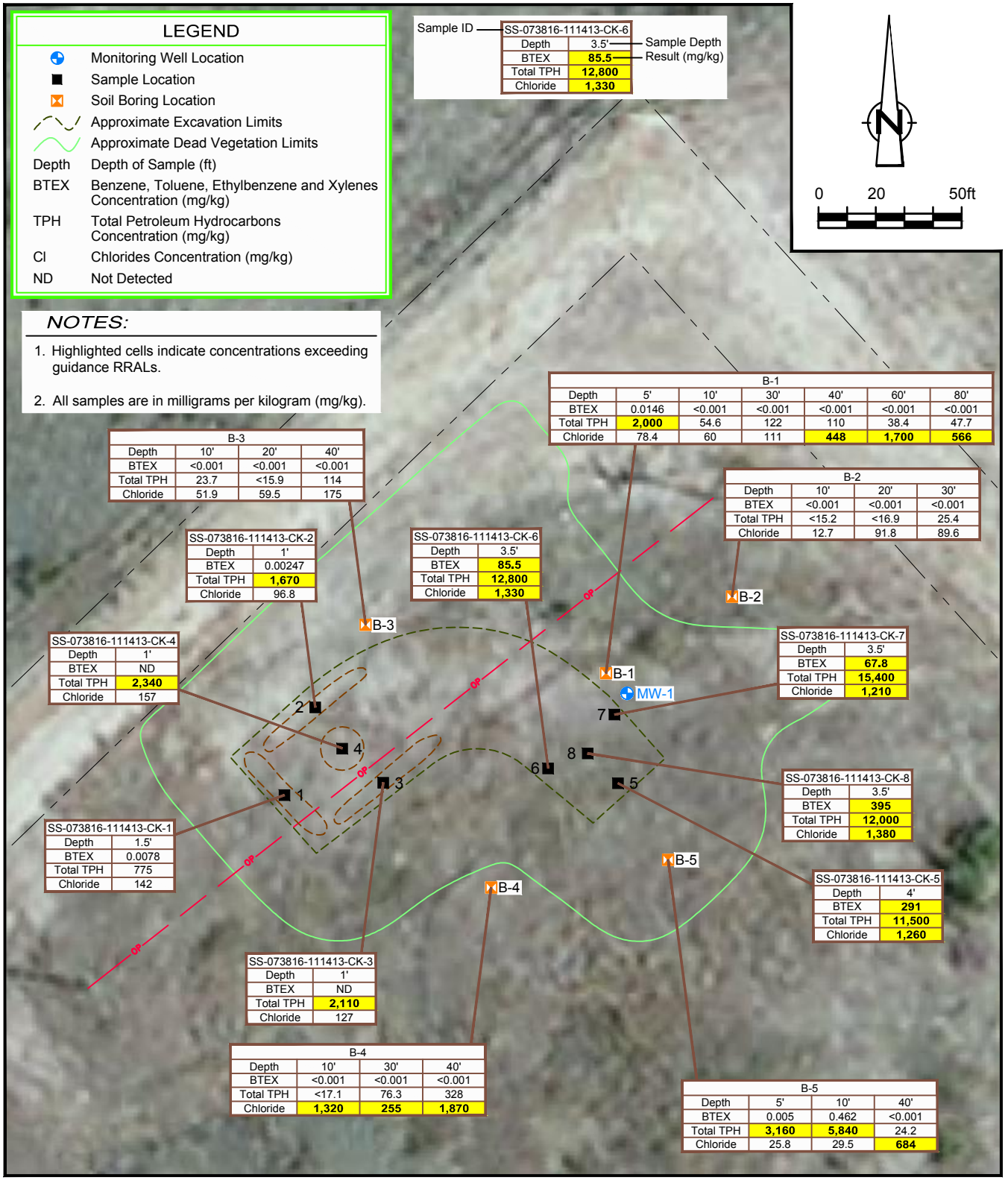


Figure 3

BTEX, TPH, AND CHLORIDE CONCENTRATIONS IN SOILS
LOVINGTON PADDOCK UNIT 96
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

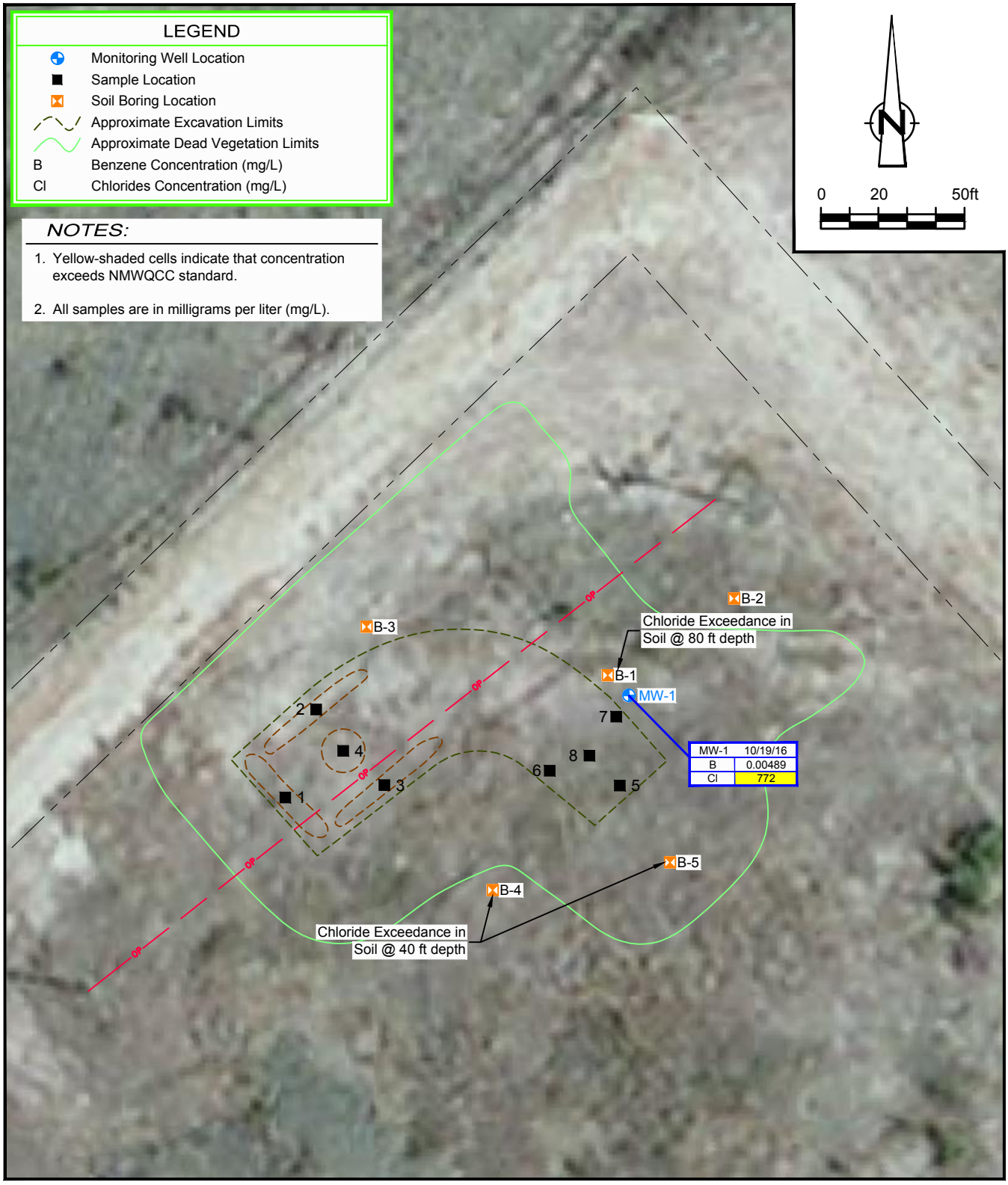
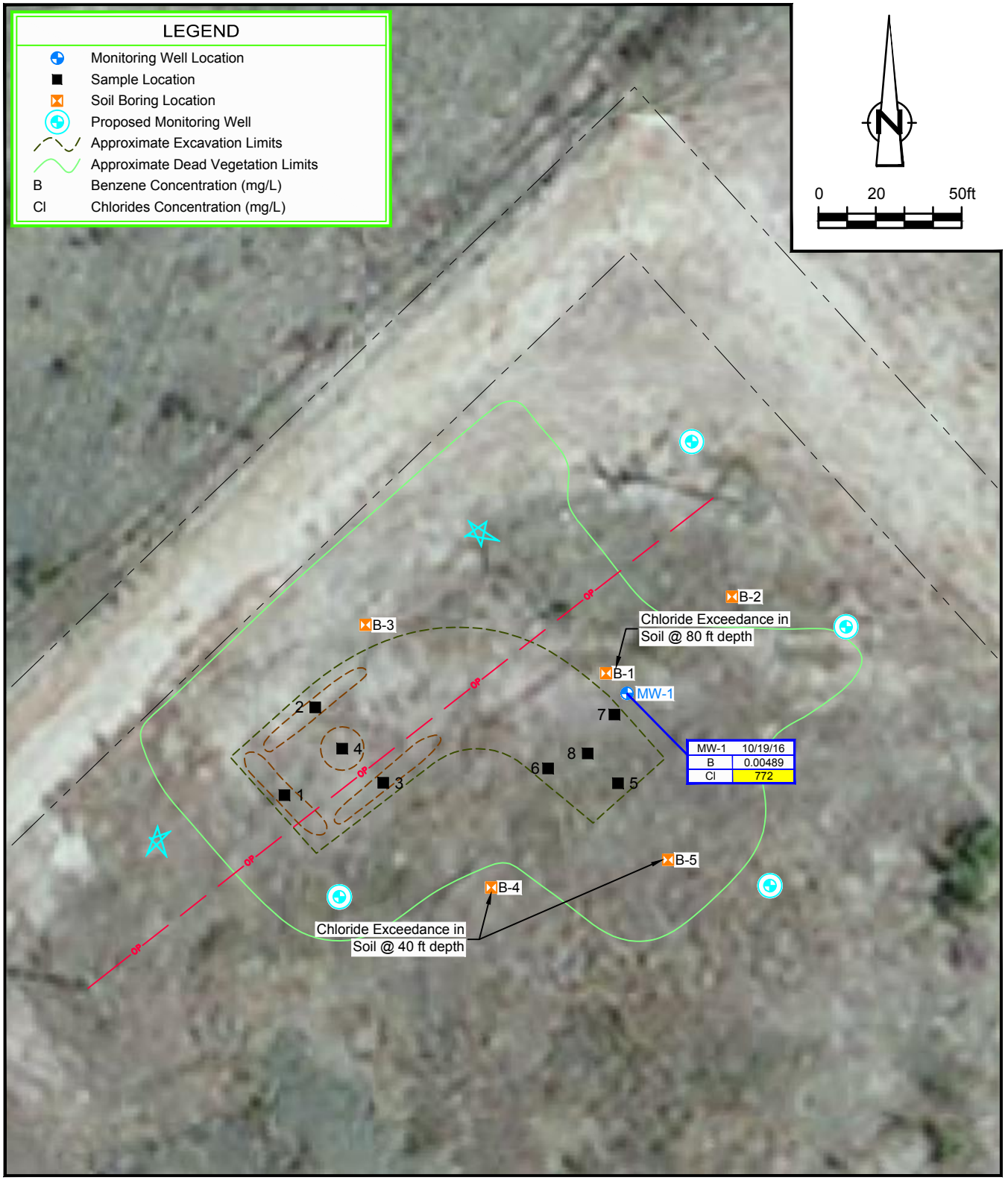


Figure 4

BENZENE AND CHLORIDE CONCENTRATIONS
IN GROUNDWATER - OCTOBER 2016
LOVINGTON PADDOCK UNIT 96
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

GHD

073816-00(005)GN-DL002 JAN 26, 2017



NOTES:

1. Yellow-shaded cells indicate that concentration exceeds NMWQCC standard.
2. All samples are in milligrams per liter (mg/L).

Figure 5

PROPOSED MONITORING WELL LOCATION MAP
LOVINGTON PADDOCK UNIT 96
LEA COUNTY, NEW MEXICO
Chevron Environmental Management Company

GHD

Tables

TABLE 1

Conductivity Profile Results 2016
LOVINGTON PADDOCK UNIT 96
UNIT N, SECTION 31-T16S-R37E, LEA COUNTY, NEW MEXICO

Well: MW-1
Date: 10/19/2016

Depth	Conductivity	Temperature
100	1915	19
105	2120	19.5
110	2229	19.5
115	2326	19.5
120	2367	19.5
125	2736	19.5
130	3574	19.5
135	3673	19.5
140	4813	19.5
145	5334	19.4
150	5533	19.4
155	5564	19.4
160	5578	19.4
165	5572	19.4
170	5563	19.4
175	5560	19.2
180	5561	19.2
185	5560	19.2
190	5552	19.2
195	5525	19.2
200	5525	19.2
205	5527	19.2
210	5521	19.2
215	5522	19.2
220	5460	19.2
224-228	3974	19.2

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

TABLE 2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - 2016
LOVINGTON PADDOCK UNIT 96
UNIT N, SECTION 31-T16S-R37E, LEA COUNTY, NEW MEXICO

Well ID	*Date*	*Benzene*	*Toluene*	*Ethylbenzene*	*Total Xylenes*	*Chloride*
NMWQCC Standards		***0.01 mg/L***	***0.75 mg/L***	***0.75 mg/L***	***0.62 mg/L***	***250 mg/L***
MW-1	10/19/16	**0.00489**	<0.0020	<0.0020	<0.0020	**772**

NOTES:

NMWQCC - New Mexico Water Quality Control Commission

'mg/L' indicates milligrams per liter

Yellow-shaded cells indicate that concentration exceeds NMWQCC standard.

- BTEX analysis by EPA Method 8021B.
- Chlorides analyzed by EPA Method 300.1

Appendices

Appendix A
Boring & Well Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 96
PROJECT NUMBER: 73816
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
DRILLING COMPANY: White Drilling Company

HOLE DESIGNATION: MW-1
DATE COMPLETED: 5 October 2016
DRILLING METHOD: Mud Rotary
FIELD PERSONNEL: J. Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)
0	GRAVELLY SAND (SPG); light tan-yellow, poorly graded, interbedded with caliche		Portland Cement				
20	- caliche, light gray, fragmented, dense, minor hydrocarbon odor	21.00					
20	SAND (SP); light dull yellow-orange, fine grained, poorly graded, interbedded with moderately to well cemented sandstone, no hydrocarbon odor						
30	- interbedded with caliche to 32 feet						
45			4-inch Sch 40 PVC Riser; Bentonite				
60	- dull orange						
70	- dull yellow-orange						
90	- grayish yellow-brown, medium to fine grained						
95	- light brown-gray						

NOTES: Stratigraphy descriptions are based on drill cuttings collected at 10-foot intervals.

OVERBURDEN LOG 073816 CVX LPU 96.GPJ CRA_CORP.GDT 20/1/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 96
PROJECT NUMBER: 73816
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
DRILLING COMPANY: White Drilling Company

HOLE DESIGNATION: MW-1
DATE COMPLETED: 5 October 2016
DRILLING METHOD: Mud Rotary
FIELD PERSONNEL: J. Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)
105							
110							
115							
120	- dull gray-brown						
125							
130	SILTY SAND (SM); dull yellow-orange-brown, poorly graded, soft, interbedded with moderately to well cemented sandstone, no hydrocarbon odor	129.00					
135							
140	- very soft						
145							
150							
155			4-inch Sch 40 PVC screen 0.010 slot				
160	- dull orange-brown, soft		Filter Pack 20/40 sieve				
165							
170	- fine to very fine grained, soft to slightly firm, with increasing clay						
175							
180	- soft						
185							
190	CLAYEY SILT (ML); dull brown, poorly graded, firm, with minor sand and some clay, no hydrocarbon odor	189.00					
195							

NOTES: Stratigraphy descriptions are based on drill cuttings collected at 10-foot intervals.

OVERBURDEN LOG 073816 CVX LPU 96.GPJ CRA_CORP.GDT 20/1/17

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: Lovington Paddock Unit 96
PROJECT NUMBER: 73816
CLIENT: Chevron Environmental Management Company
LOCATION: Lea County, New Mexico
DRILLING COMPANY: White Drilling Company

HOLE DESIGNATION: MW-1
DATE COMPLETED: 5 October 2016
DRILLING METHOD: Mud Rotary
FIELD PERSONNEL: J. Stoffel

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	Monitoring Well	SAMPLE DEPTH (ft)	SAMPLE INTERVAL	SAMPLE REC (ft)	SAMPLE PP (tsf)
205	SILTY GRAVEL (GM); granule to pebble sized, with fine to very fine grained sand, no hydrocarbon odor	205.00					
210							
215							
220	- predominantly pebble sized						
225							
230	- increasing sand and silt						
235							
240	CLAYEY GRAVEL (GC); granule to pebble sized, with very fine grained sand, silt,and a stiff clay, no hydrocarbon odor	239.00 240.00	Backfill (drill cuttings) WELL DETAILS Screened interval: 89.00 to 219.00ft BGS Length: 130ft Slot Size: 0.010 Material: PVC Seal: 10.00 to 83.00ft BGS Material: Bentonite 3/8-inch chips Sand Pack: 83.00 to 236.00ft BGS Material: 20/40 silica sand BOREHOLE DIAMETER 8 inch				
245	END OF BOREHOLE @ 240.0ft BGS						
250							
255							
260							
265							
270							
275							
280							
285							
290							
295							

NOTES: Stratigraphy descriptions are based on drill cuttings collected at 10-foot intervals.

OVERBURDEN LOG 073816 CVX LPU 96.GPJ CRA_CORP.GDT 20/1/17

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
MW-1	L-14207
WELL OWNER NAME(S)	PHONE (OPTIONAL)
Chevron Midcontinent LP	
WELL OWNER MAILING ADDRESS	CITY / STATE / ZIP
1400 Smith Street RM 07086	Houston / TX / 77002

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32	51	56.81	N
LONGITUDE	103	18	21.40	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND

* DATUM REQUIRED: WGS 84

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

LPU 96

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
WD-1456	John W. White	White Drilling Company, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
10/3/2016	10/12/2016	240.0		95.54

COMPLETED WELL IS: ○ ARTESIAN ○ DRY HOLE ◉ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 95.54

DRILLING FLUID: ○ AIR ◉ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ○ ROTARY ○ HAMMER ○ CABLE TOOL ○ OTHER – SPECIFY:

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0.0	90.0	7 7/8	Sch. 40 PVC Riser	Threads	4.0	1/4"	
90.0	220.0	7 7/8	Sch. 40 PVC Screen	Threads	4.0	1/4"	.010

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
240.0	83.0	7 7/8	20/40 Sand	68/Sacks	Handmix
83.0	10.0	7 7/8	Bentonite Chips	20/Sacks	Handmix
10.0	0.0	7 7/8	Cement	12/Sacks	Handmix

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0.0	1.0	1.0	Brown sandy clay	○ Y ◉ N	
1.0	9.5	8.5	Caliche	○ Y ◉ N	
9.5	16.0	6.5	Light brown limestone	○ Y ◉ N	
16.0	20.0	4.0	Caliche	○ Y ◉ N	
20.0	50.0	30.0	Brown sand w/caliche	○ Y ◉ N	
50.0	65.0	15.0	Brown sand	○ Y ◉ N	
65.0	75.0	10.0	Brown sand/sandstone	○ Y ◉ N	
75.0	140.0	65.0	Brown sand/sandstone w/light tan sandstone layers	◉ Y ○ N	
140.0	200.0	60.0	Brown silty sand w/brown sandstone mixed	◉ Y ○ N	
200.0	205.0	5.0	Brown silty sand w/small gravel	◉ Y ○ N	
205.0	218.0	13.0	Gravel up to 3/4"	◉ Y ○ N	
218.0	236.0	18.0	Tan clayey sand w/small gravel	◉ Y ○ N	
236.0	237.0	1.0	Gravel up tp 3/4"	◉ Y ○ N	
237.0	240.0	3.0	Brown and tan clay/shale	◉ Y ○ N	
				◉ Y ○ N	
				◉ Y ○ N	
				◉ Y ○ N	
				◉ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	
				○ Y ○ N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: ○ PUMP ○ AIR LIFT ○ BAILER ○ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm):

5. TEST; RIG SUPERVISION

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

MISCELLANEOUS INFORMATION:

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

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	POD NUMBER	TRN NUMBER
LOCATION		PAGE 2 OF 2

Appendix B
Waste Manifest

24-HOUR SERVICE

SUNDANCE SERVICES, Inc.

P.O. Box 1737 Eunice, New Mexico 88231 (575) 394-2511

PRC #1750108

№ 30169

AUTHORIZATION FOR WORK

DATE 10-19-16

YOUR NO. 786008

COMPANY Chevron

LEASE LEA 1196

MAIL INVOICE TO: Chevron

WELL Rob Speer

DESCRIPTION OF WORK

Pick up box w/ EM exempt cuttings from monitor well installation

Equipment Used	Roll off	@$		Hrs. worked		Total
Box Rent	✓	@$		Hrs. worked		Total
Liner	✓	@$		Hrs. worked		Total
Jet Out	✓	@$		Hrs. worked		Total
Disposal	✓	@$		Hrs. worked		Total
Disposal Facility	JJL	@$		Hrs. worked		Total
Box No. Delivered		@$		Hrs. worked		Total
Box No. Picked Up		@$		Hrs. worked		Total

Driver [illegible]

Approved by [illegible]

Sub Total

Sales Tax

TOTAL

CHEVRON
MCBU

VACUUM FMT

NO 96-001 **NON-HAZARDOUS WASTE MANIFEST** 1. PAGE 1 OF 1 2. Truck NO.

GENERATOR

3. COMPANY NAME	4. ADDRESS			5. PICK-UP DATE:
CHEVRON PHONE NO. **575-396-4414**	**56 Texas Camp Rd.** CITY **Lovington**	STATE **NM**	ZIP **88260**	10-19-16

7. NAME OR DESCRIPTION OF WASTE SHIPPED:	8. CONTAINERS No.	8. CONTAINERS Type	9. TOTAL QUANTITY	10. UNIT WT/Vol.	
a. Crude Oil impacted soil and debris	1	CM		Y	
b.					
c.					
d.					

12. NAME OF LEASE: Lovington Paddock Unit #96

14. **IN CASE OF EMERGENCY OR SPILL, CONTACT**

HES SPECIALIST — 24-HOUR EMERGENCY NO. **575-396-4414 (DIAL 1 AFTER HOURS)**

15. **Chevron Representative:** Hereby declare that the contents of this consignment are fully and accurately described above.

Josh Nixon

PRINTED TYPED NAME: Frank Forster on behalf of COMC

SIGNATURE: on behalf of COMC DATE

TRANSPORTERS

16. TRANSPORTER (1)	17. TRANSPORTER (2)
TRUCKING COMPANY NAME: Sundance	**TRUCKING COMPANY NAME:**
IN CASE OF EMERGENCY CONTACT:	IN CASE OF EMERGENCY CONTACT:
EMERGENCY PHONE: Josh Nixon (575-415-1206	EMERGENCY PHONE:
18. **TRANSPORTER (1):** Acknowledgment of receipt of material	18. **TRANSPORTER (2):** Acknowledgment of receipt of material
PRINTED/TYPED NAME Luis	PRINTED/TYPED NAME
SIGNATURE DATE 10-19-16	SIGNATURE DATE

DISPOSAL FACILITY INFO

DISPOSAL FACILITY:	ADDRESS:	PHONE:
Sundance	1001 E 12th St Fort Sumner, NM	575-394-2511

PERMIT NO.	20. COMMENTS
10-19-16	

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorezed and permitted to receive such wastes.

AUTHORIZED SIGNATURE	CELL NO.	DATE	TIME

PLEASE REMIT COMPLETED MANIFEST VIA MAIL, EMAIL OR FAX TO THE BELOW LISTED CONTACT:
RIMY ALVARADO - PHONE: (575) 396-441 X223 • FAX: (575) 396-6913 • EMAIL: RIMYALVARADO@CHEVRON.COM

Appendix C
Lab Reports

Analytical Report 538950

for

GHD Services, INC- Midland

Project Manager: William Foord

CEMCLPU-96

073816

25-OCT-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

Table of Contents

25-OCT-16

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

Reference: XENCO Report No(s): **538950**
CEMCLPU-96
Project Address: Lovington NM

William Foord:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 538950. 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. 538950 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 538950

GHD Services, INC- Midland, Midland, TX

CEMCLPU-96

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1-W-161019	W	10-19-16 12:30		538950-001

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results 538950

GHD Services, INC- Midland, Midland, TX

CEMCLPU-96

Sample Id: **MW-1-W-161019** Matrix: Ground Water Date Received:10.19.16 16.30

Lab Sample Id: 538950-001 Date Collected: 10.19.16 12.30

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Tech: MNR % Moisture:

Analyst: MNR Date Prep: 10.24.16 11.26

Seq Number: 3002599

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**772**	5.00	mg/L	10.24.16 11.26		10

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B

Tech: PJB % Moisture:

Analyst: PJB Date Prep: 10.20.16 12.00

Seq Number: 3002494

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.00489**	0.00200	mg/L	10.20.16 12.48		1
Toluene	108-88-3	ND	0.00200	mg/L	10.20.16 12.48	U	1
Ethylbenzene	100-41-4	ND	0.00200	mg/L	10.20.16 12.48	U	1
m,p-Xylenes	179601-23-1	ND	0.00200	mg/L	10.20.16 12.48	U	1
o-Xylene	95-47-6	ND	0.00200	mg/L	10.20.16 12.48	U	1
Total Xylenes	1330-20-7	ND	0.00200	mg/L	10.20.16 12.48	U	1
Total BTEX		**0.00489**	0.00200	mg/L	10.20.16 12.48		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	95	%	80-120	10.20.16 12.48	
4-Bromofluorobenzene	460-00-4	109	%	80-120	10.20.16 12.48	

QC Summary 538950

GHD Services, INC- Midland

CEMCLPU-96

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3002599 Matrix: Water Date Prep: 10.24.16
MB Sample Id: 715299-1-BLK LCS Sample Id: 715299-1-BKS LCSD Sample Id: 715299-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	25.0	24.9	100	24.7	99	90-110	1	20	mg/L	10.24.16 10:51	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3002599 Matrix: Water Date Prep: 10.24.16
Parent Sample Id: 538937-001 MS Sample Id: 538937-001 S MSD Sample Id: 538937-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	181	125	311	104	309	102	90-110	1	20	mg/L	10.24.16 11:12	

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3002494 Matrix: Water Date Prep: 10.19.16
MB Sample Id: 715152-1-BLK LCS Sample Id: 715152-1-BKS LCSD Sample Id: 715152-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0895	90	0.0888	89	70-125	1	25	mg/L	10.19.16 15:52	
Toluene	<0.00200	0.100	0.0910	91	0.0908	91	70-125	0	25	mg/L	10.19.16 15:52	
Ethylbenzene	<0.00200	0.100	0.0942	94	0.0948	95	71-129	1	25	mg/L	10.19.16 15:52	
m,p-Xylenes	<0.00200	0.200	0.192	96	0.193	97	70-131	1	25	mg/L	10.19.16 15:52	
o-Xylene	<0.00200	0.100	0.0948	95	0.0957	96	71-133	1	25	mg/L	10.19.16 15:52	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		97		85		80-120	%	10.19.16 15:52
4-Bromofluorobenzene	101		100		102		80-120	%	10.19.16 15:52

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3002494 Matrix: Ground Water Date Prep: 10.19.16
Parent Sample Id: 538890-001 MS Sample Id: 538890-001 S MSD Sample Id: 538890-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0934	93	0.0941	94	70-125	1	25	mg/L	10.19.16 16:24	
Toluene	<0.00200	0.100	0.0945	95	0.0963	96	70-125	2	25	mg/L	10.19.16 16:24	
Ethylbenzene	<0.00200	0.100	0.0985	99	0.101	101	71-129	3	25	mg/L	10.19.16 16:24	
m,p-Xylenes	<0.00200	0.200	0.200	100	0.204	102	70-131	2	25	mg/L	10.19.16 16:24	
o-Xylene	<0.00200	0.100	0.0978	98	0.100	100	71-133	2	25	mg/L	10.19.16 16:24	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		100		80-120	%	10.19.16 16:24
4-Bromofluorobenzene	100		103		80-120	%	10.19.16 16:24

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

Setting the Standard since 1990

Stafford,Texas (281-240-4200) | Odessa, Texas (432-563-1800) | Lakeland, Florida (863-646-8526)

Dallas Texas (214-902-0300) | Norcross, Georgia (770-449-8800) | Tampa, Florida (813-620-2000)

Service Center - San Antonio, Texas (210-509-3334) | www.xenco.com

Xenco Quote # | Xenco Job # 539950

Client / Reporting Information

Company Name / Branch: GHD-Midland

Company Address: 2135 S Loop 250 W, Midland, TX 79703

Email: william.foord@ghd.com | Phone No: 713-734-3090

Project Contact: Scott Foord

Samplers's Name: Justin Mixon

Project Information

Project Name/Number: CEMCLPU-96/073816

Project Location: Lovington, NM

Invoice To:

PO Number:

Matrix Codes

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

Analytical Information

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	BTEX	TPH-GRO	TPH-DRO		Chloride	Moisture					Field Comments
1	mw-1-W-161019		10-19-16	12:30	GW	4	X								X	X	X		X						
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Turnaround Time (Business days)

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

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

Data Deliverable Information

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

Notes:

FED-EX / UPS: Tracking #

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

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		10-19-16 1630				
2						
3						
4						
5						

Custody Seal # | Preserved where applicable | On Ice

Temp: IR ID:R-8
CF:+ 0.1
Corrected Temp: 4.7 C

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

Final 1.000

Page 9 of 10

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 10/19/2016 04:30:00 PM

Work Order #: 538950

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)?	4.7
#2 *Shipping container in good condition?	**N/A**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**N/A**
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	**Yes**
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**Yes**
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

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

Analyst:

PH Device/Lot#:

Checklist completed by: Jessica Kramer
Jessica Kramer
Date: 10/20/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 10/20/2016