SITE INFORMATION

Report Type: Work Plan 1RP-4701

General Site Information:						
Site:	**Gettysburg State Com #1H**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit D**	**Sec. 16**	**T 23S**	**R 34E**		
Lease Number:	**API No. 30-025-41928**					
County:	**Lea County**					
GPS:	**32.3113899º N**			**103.4824753º W**		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of Hwy 128 and Delaware Basin Rd (CR 21), travel north on Delaware Basin Rd for approximately 10.10 miles, turn south onto lease road for approxiately 1.10 miles, turn west and continue for 0.30 mi, take the lease road to the north of the facility and continue west for 0.25 miles to the location.					

Release Data:	
Date Released:	5/13/2017
Type Release:	Oil
Source of Contamination:	Tank
Fluid Released:	7 bbls
Fluids Recovered:	6.5 bbls

Official Communication:			
Name:	Robert McNeil		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 683-7443		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	***0***	*325'-350'*
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	***0***	*0*
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	***0***	*0*
Total Ranking Score:	***0***	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	5,000

TETRA TECH

APPROVED
By Olivia Yu at 2:30 pm, Dec 29, 2017

NMOCD approves of the delineation completed and the proposed remediation for 1RP-4701.

December 12, 2017

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

Re: Work Plan for the COG Operating LLC., Gettysburg State Com #1H, Unit D, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico. 1RP-4701.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to prepare a work plan for a release that occurred at the Gettysburg State Com #1H, Unit D, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.3113899º, W 103.4824753 º. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on May 13, 2017, and released approximately 7 barrels of oil due to a malfunctioning oil dump on the production knock out causing a release at the day tank. A vacuum truck was used to remove the freestanding fluids, recovering 6.5 barrels of oil. The release occurred on the pad area and measured approximately 25' x 85'. The initial C-141 Form is included in Appendix A.

Groundwater

No water wells are listed within Section 16 in the New Mexico Office of the State Engineers database. The nearest well listed in the database is located in Section 15, approximately 1.70 miles southeast of the site, with a reported depth to groundwater of 430' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 325' and 350' below surface. The groundwater data is shown in Appendix B.

Tetra Tech
4000 North Big Spring, Suite 401, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On June 14, 2017, COG personnel were onsite to evaluate and sample the release area. One (1) trench (T-1) was installed in the release area to a total depth of 4.0' below surface. In addition, four (4) additional sample points (North, South, East, and West) were installed to a depth of 1.0' below surface in order to define the horizontal extents of the release. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The trench locations are shown on Figure 3.

Referring to Table 1, the area of trench (T-1) showed TPH, benzene, and total BTEX concentrations above the RRALs at surface, with concentrations of 74,800 mg/kg (TPH), 27.3 mg/kg (benzene) and 725 mg/kg (total BTEX). The concentrations declined to below the RRALs at 1.0' below surface, before increasing to 20,200 mg/kg (TPH), 23.4 mg/kg (benzene) and 533 mg/kg (total BTEX) at 2.0' below surface. The impact declined with depth to below the laboratory reporting limits at 3.0' and 4.0' below surface. Additionally, none of the samples collected showed any significant chloride concentrations to the shallow soils, with a chloride high of 307 mg/kg at surface.

In addition, the horizontal samples (North, South, East, and West) did not show any TPH, benzene or total BTEX concentrations above the RRALs. Additionally, none of the samples collected in the areas of (North, South, East, and West) showed any significant chloride concentrations to the shallow soils.

Work Plan

Based on the laboratory results, COG proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of trench (T-1) will be excavated to depth of approximately 3.0' below surface. Once excavated to the appropriate depth, the excavation will be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

Conclusion

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

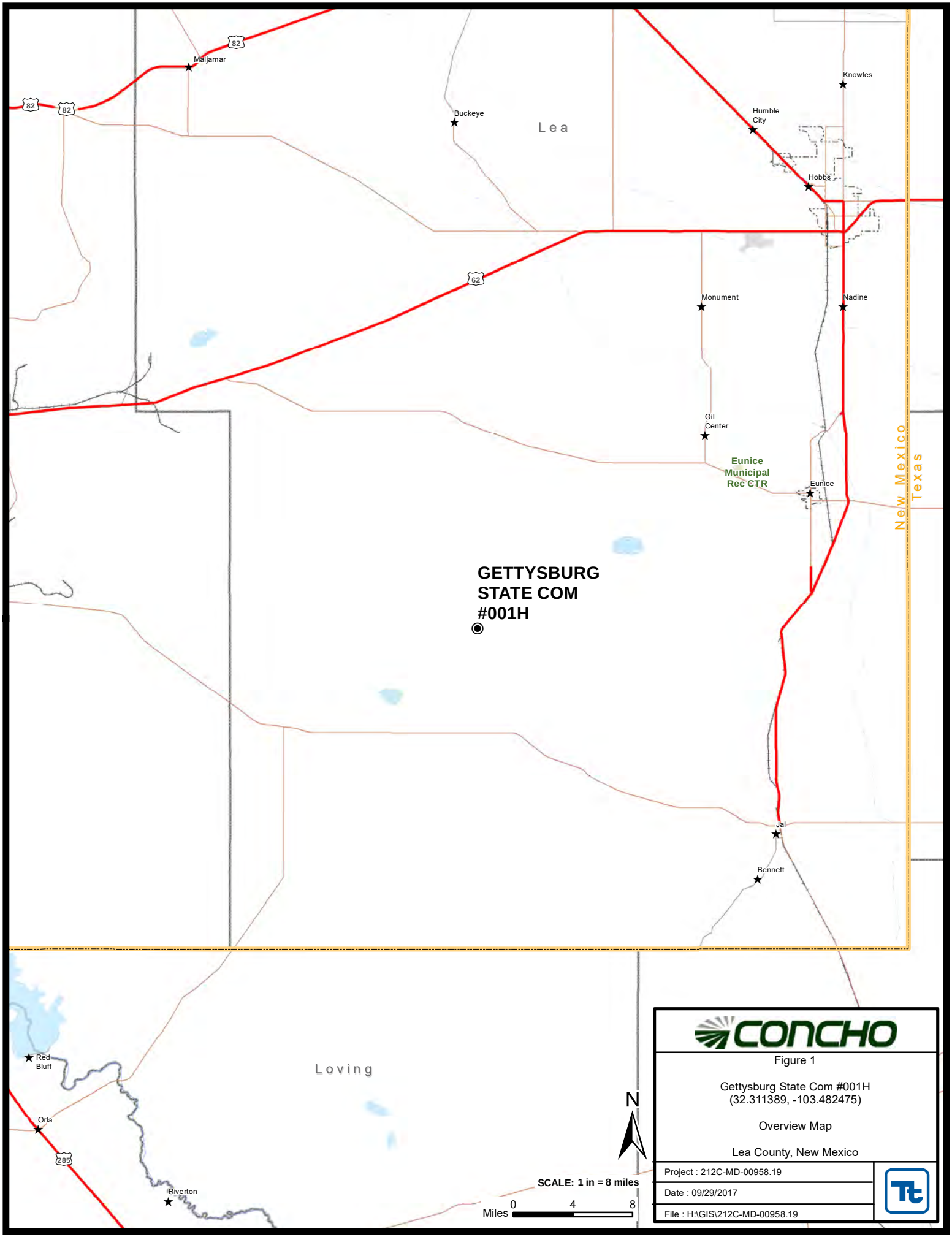
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Geologist I

Ike Tavarez,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG
Rebecca Haskell – COG
Amber Groves - SLO

Figures



CONCHO

Figure 1

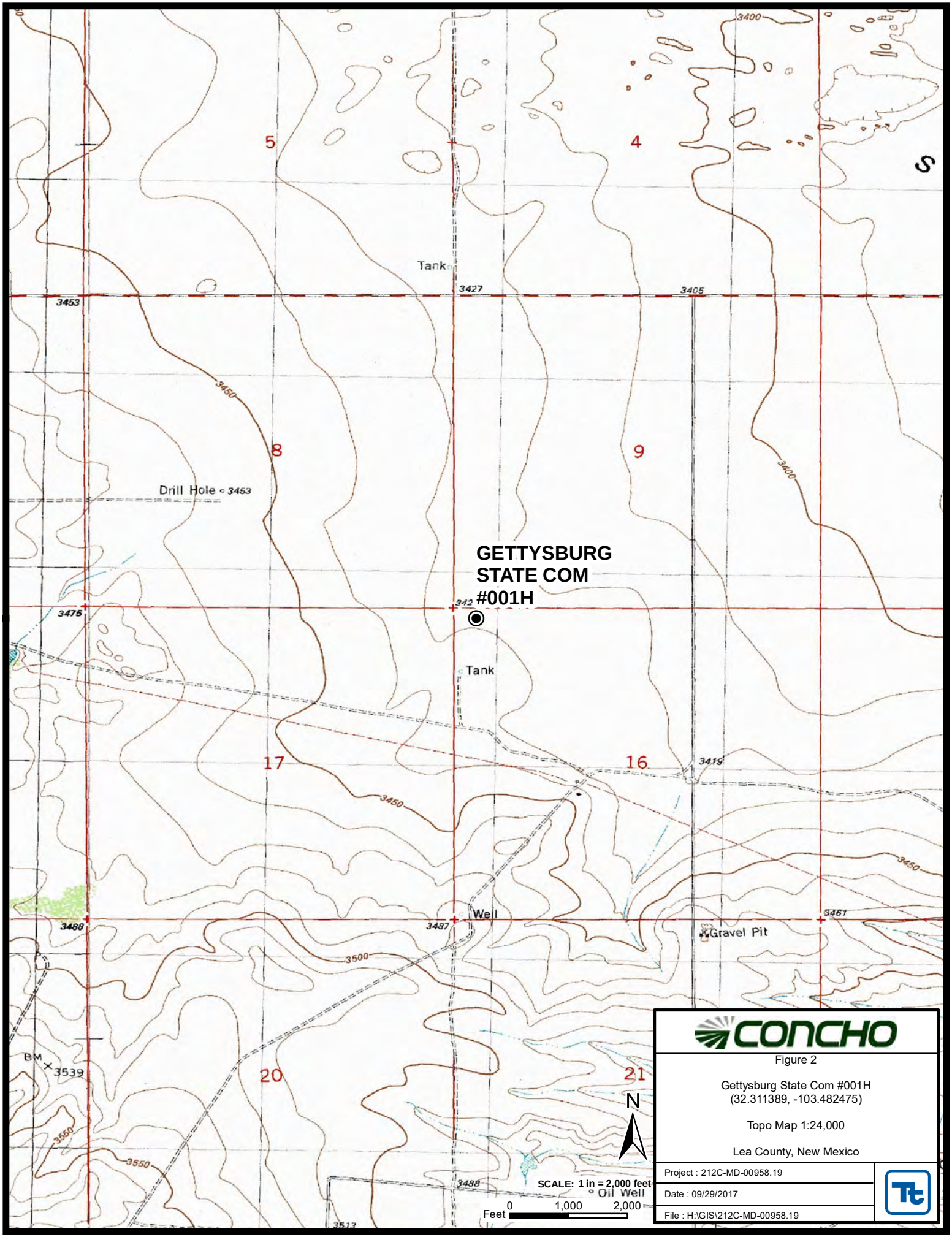
Gettysburg State Com #001H
(32.311389, -103.482475)

Overview Map

Lea County, New Mexico

Project : 212C-MD-00958.19	
Date : 09/29/2017	
File : H:\GIS\212C-MD-00958.19	

Mapped By: Isabel Marmolejo



CONCHO

Figure 2

Gettysburg State Com #001H
(32.311389, -103.482475)

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00958.19	
Date : 09/29/2017	
File : H:\GIS\212C-MD-00958.19	

Mapped By: Isabel Marmolejo

CONCHO

Figure 3

Gettysburg State Com #001H
(32.311389, -103.482475)

Spill Assessment Map

Lea County, New Mexico

Project : 212C-MD-00958.19	
Date : 09/29/2017	
File : H:\GIS\212C-MD-00958.19	

Mapped By: Isabel Marmolejo

CONCHO

Figure 4

Gettysburg State Com #001H
(32.311389, -103.482475)

Proposed Excavation Area & Depth Map

Lea County, New Mexico

Project : 212C-MD-00958.19

Date : 09/29/2017

File : H:\GIS\212C-MD-00958.19

Mapped By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Gettysburg State #1H
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	C6-C10	C10-C28	C28-C35	Total						
T-1	6/14/2017	Surface	X		**13,700**	**22,800**	**2,730**	**74,800**	**27.3**	198	133	367	**725**	307
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	0.00525	<0.00200	0.00438	0.00963	<4.98
	"	2	X		**4,740**	**4,960**	**798**	**20,200**	**23.4**	190	88.3	231	**533**	<5.00
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	38.8
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	88.7
North	6/14/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	545
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00202	0.00224	<0.00202	<0.00202	0.00224	56.6
South	6/14/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	295
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	50.7
East	6/14/2017	Surface	X		<15.0	328	81.3	409	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	281
	"	1	X		<15.0	43.1	<15.0	43.1	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	61.2
West	6/14/2017	Surface	X		<15.0	22.2	<15.0	22.2	<0.00198	0.00412	0.00366	0.0181	0.0259	455
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	25.8

Proposed Excavation Depths

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Gettysburg State Com #001H	Facility Type: Production Equipment (Well Pad)

Surface Owner: Federal	Mineral Owner:	API No. 30-025-41928

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	16	23S	34E	190	North	330	West	Lea

Latitude 32.3113899 **Longitude** -103.4824753

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 7 bbls	Volume Recovered: 6.5 bbls
Source of Release: Tank	Date and Hour of Occurrence: May 13, 2017 12:45 pm	Date and Hour of Discovery: May 13, 2017 12:45 pm
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The release was caused by the oil dump on production knock out malfunctioning which caused the vessel to overfill. Fluid went from the production knock out to the scrubber pots on gas compressor. The pots sent fluids to the day tank and fluid was released out of the thief hatch.

Describe Area Affected and Cleanup Action Taken.*

The release was on location. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

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

Signature: Rebecca Haskell		OIL CONSERVATION DIVISION	
Printed Name:	Rebecca Haskell	Approved by Environmental Specialist:	
Title:	Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address:	rhaskell@concho.com	Conditions of Approval:	Attached ☐
Date: May 15, 2017	Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Gettysburg State Com #1H
Lea County, New Mexico

22 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 391
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 34 East

6	5	4	3	2	1
7	8	9	10	11 30	12 50
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 35 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South 34 East

6	5	4	3	2	1
7	8 225	9	10	11	12
18	17	16	15 430	14 318	13
19	20	21	22 295	23 265	24
30	29	28	27	26	25
31	32 130	33	34	35	36

23 South 35 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South 33 East

6	5	4	3	2	1
7	8	9	10 24.6	11	12
18	17	16	15	14	13
19	20	21	22	23 208	24 16.9
30	29	28	27	26	25
31	32	33 93.2	34	35	36

24 South 34 East

6 81	5	4 475	3	2	1
7	8	9	10	11 40	12
18	17	16	15	14	13
19	20	21 431	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South 35 East

6	5	4	3	2	1
7	8	9	10 300	11	12
18	17	16	15	14	13
19	20 97	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Depth Well	Depth Water	Water Column
C 03620 POD1		C	LE	1	4	3	32	23S	34E	641790	3569941	480	130	350
CP 00556 POD1		CP	LE	4	4	3	08	23S	34E	641762	3576206	497	255	242
CP 00580		CP	LE	3	4	3	23	23S	34E	646524	3572948*	220		
CP 00606		CP	LE		4	1	23	23S	34E	646613	3573854*	650	265	385
CP 00618		CP	LE	1	2	4	22	23S	34E	645713	3573539*	428	295	133
CP 00637		CP	LE	3	3	4	15	23S	34E	645293	3574541*	430	430	0
CP 00872 POD1		CP	LE	1	1	1	08	23S	34E	641225	3577504*	494	305	189
CP 01075 POD1		CP	LE		1	1	08	23S	34E	641278	3577525	430	20	410
CP 01120 POD1		CP	LE			3	14	23S	34E	646366	3574753	397	318	79
CP 01130 POD1		CP	LE	2	1	2	07	23S	34E	640662	3577558	27		
CP 01130 POD2		CP	LE	2	1	2	07	23S	34E	640674	3577549	27		
CP 01258 POD1		CP	LE	1	4	3	22	23S	34E	645015	3573221	25		
CP 01258 POD2		CP	LE	1	4	3	22	23S	34E	644941	3572883	65		
CP 01258 POD3		CP	LE	1	4	3	22	23S	34E	644938	3573097	25		

Average Depth to Water: **252 feet**

Minimum Depth: **20 feet**

Maximum Depth: **430 feet**

Record Count: 14

PLSS Search:

Township: 23S **Range:** 34E

***UTM location was derived from PLSS - see Help**

8/28/17 11:30 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C

Certificate of Analysis Summary 555791

COG Operating LLC, Artesia, NM

Project Name: Gettysburg State #1 H

Project Id:
Contact: Aaron Lieb
Project Location: Getysburg ST. #1 H

Date Received in Lab: Tue Jun-20-17 10:05 am
Report Date: 28-JUN-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	555791-001		555791-002		555791-003		555791-004		555791-005		555791-006	
	Field Id:	North - Surf		North - 1'		South - Surf		South - 1'		East - Surf		East - 1'	
	Depth:			1 ft				1 ft				1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-14-17 10:30		Jun-14-17 10:30		Jun-14-17 10:30		Jun-14-17 10:30		Jun-14-17 10:30		Jun-14-17 10:30	
BTEX by EPA 8021B	***Extracted:***	Jun-26-17 11:00		Jun-26-17 16:30		Jun-26-17 16:30		Jun-26-17 16:30		Jun-26-17 16:30		Jun-26-17 16:30	
	Analyzed:	Jun-26-17 13:50		Jun-27-17 08:45		Jun-26-17 23:08		Jun-26-17 23:24		Jun-26-17 23:40		Jun-26-17 23:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Toluene		<0.00202	0.00202	0.00224	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Ethylbenzene		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
m_p-Xylenes		<0.00403	0.00403	<0.00405	0.00405	<0.00398	0.00398	<0.00400	0.00400	<0.00402	0.00402	<0.00398	0.00398
o-Xylene		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Total Xylenes		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Total BTEX		<0.00202	0.00202	0.00224	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Chloride by EPA 300	***Extracted:***	Jun-27-17 12:00		Jun-27-17 12:00		Jun-27-17 12:00		Jun-27-17 12:00		Jun-27-17 12:00		Jun-27-17 12:00	
	Analyzed:	Jun-27-17 15:36		Jun-27-17 15:59		Jun-27-17 16:06		Jun-27-17 16:14		Jun-27-17 16:22		Jun-27-17 16:44	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		545	4.91	56.6	4.97	295	4.97	50.7	4.96	281	4.98	61.2	4.92
TPH By SW8015 Mod	***Extracted:***	Jun-24-17 12:00		Jun-24-17 12:00		Jun-24-17 12:00		Jun-24-17 12:00		Jun-24-17 12:00		Jun-24-17 12:00	
	Analyzed:	Jun-24-17 16:19		Jun-24-17 17:19		Jun-24-17 17:40		Jun-24-17 18:00		Jun-24-17 18:20		Jun-24-17 18:40	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
C10-C28 Diesel Range Organics		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	328	15.0	43.1	15.0
C28-C35 Oil Range Hydrocarbons		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	81.3	15.0	<15.0	15.0
Total TPH		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	409	15.0	43.1	15.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 555791

COG Operating LLC, Artesia, NM

Project Name: Gettysburg State #1 H

Project Id:
Contact: Aaron Lieb
Project Location: Getysburg ST. #1 H

Date Received in Lab: Tue Jun-20-17 10:05 am
Report Date: 28-JUN-17
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	555791-007		555791-008					
	Field Id:	West - Surf		West - 1'					
	Depth:			1 ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Jun-14-17 10:30		Jun-14-17 10:30					
BTEX by EPA 8021B	***Extracted:***	Jun-26-17 16:30		Jun-26-17 16:30					
	Analyzed:	Jun-27-17 00:12		Jun-27-17 00:28					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00198	0.00198	<0.00200	0.00200				
Toluene		0.00412	0.00198	<0.00200	0.00200				
Ethylbenzene		0.00366	0.00198	<0.00200	0.00200				
m_p-Xylenes		0.0101	0.00396	<0.00401	0.00401				
o-Xylene		0.00798	0.00198	<0.00200	0.00200				
Total Xylenes		0.0181	0.00198	<0.00200	0.00200				
Total BTEX		0.0259	0.00198	<0.00200	0.00200				
Chloride by EPA 300	***Extracted:***	Jun-27-17 12:00		Jun-27-17 12:00					
	Analyzed:	Jun-27-17 16:52		Jun-27-17 17:00					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		455	4.97	25.8	4.98				
TPH By SW8015 Mod	***Extracted:***	Jun-24-17 12:00		Jun-24-17 12:00					
	Analyzed:	Jun-24-17 19:00		Jun-24-17 19:20					
	Units/RL:	mg/kg	RL	mg/kg	RL				
C6-C10 Gasoline Range Hydrocarbons		<15.0	15.0	<15.0	15.0				
C10-C28 Diesel Range Organics		22.2	15.0	<15.0	15.0				
C28-C35 Oil Range Hydrocarbons		<15.0	15.0	<15.0	15.0				
Total TPH		22.2	15.0	<15.0	15.0				

Kelsey Brooks
Project Manager

Analytical Report 555791

for

COG Operating LLC

Project Manager: Aaron Lieb

Gettysburg State #1 H

28-JUN-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

28-JUN-17

Project Manager: **Aaron Lieb**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **555791**
Gettysburg State #1 H
Project Address: Getysburg ST. #1 H

Aaron Lieb:

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) 555791. 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. 555791 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 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North - Surf	S	06-14-17 10:30		555791-001
North - 1'	S	06-14-17 10:30	- 1 ft	555791-002
South - Surf	S	06-14-17 10:30		555791-003
South - 1'	S	06-14-17 10:30	- 1 ft	555791-004
East - Surf	S	06-14-17 10:30		555791-005
East - 1'	S	06-14-17 10:30	- 1 ft	555791-006
West - Surf	S	06-14-17 10:30		555791-007
West - 1'	S	06-14-17 10:30	- 1 ft	555791-008

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3020734 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3020817 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**North - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-001	Date Collected:	06.14.17 10.30		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**545**	4.91	mg/kg	06.27.17 15.36		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 16.19	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 16.19	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 16.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 16.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	06.24.17 16.19	
o-Terphenyl	84-15-1	110	%	70-135	06.24.17 16.19	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**North - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-001	Date Collected:	06.14.17 10.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 11.00	Basis:	Wet Weight
Seq Number:	3020734				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
m_p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.26.17 13.50	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	119	%	80-120	06.26.17 13.50	
4-Bromofluorobenzene	460-00-4	111	%	80-120	06.26.17 13.50	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**North - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-002	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**56.6**	4.97	mg/kg	06.27.17 15.59		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 17.19	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 17.19	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 17.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 17.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	06.24.17 17.19	
o-Terphenyl	84-15-1	104	%	70-135	06.24.17 17.19	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**North - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-002	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
Toluene	108-88-3	**0.00224**	0.00202	mg/kg	06.27.17 08.45		1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
m_p-Xylenes	179601-23-1	<0.00405	0.00405	mg/kg	06.27.17 08.45	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
Total BTEX		**0.00224**	0.00202	mg/kg	06.27.17 08.45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	80-120	06.27.17 08.45	
1,4-Difluorobenzene	540-36-3	102	%	80-120	06.27.17 08.45	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**South - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-003	Date Collected:	06.14.17 10.30		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**295**	4.97	mg/kg	06.27.17 16.06		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 17.40	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 17.40	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 17.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 17.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	06.24.17 17.40	
o-Terphenyl	84-15-1	107	%	70-135	06.24.17 17.40	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**South - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-003	Date Collected:	06.14.17 10.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.26.17 23.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	83	%	80-120	06.26.17 23.08	
4-Bromofluorobenzene	460-00-4	87	%	80-120	06.26.17 23.08	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**South - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-004	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**50.7**	4.96	mg/kg	06.27.17 16.14		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 18.00	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 18.00	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 18.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 18.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	06.24.17 18.00	
o-Terphenyl	84-15-1	103	%	70-135	06.24.17 18.00	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**South - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-004	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
m_p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.26.17 23.24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	80-120	06.26.17 23.24	
1,4-Difluorobenzene	540-36-3	115	%	80-120	06.26.17 23.24	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**East - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-005	Date Collected:	06.14.17 10.30		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**281**	4.98	mg/kg	06.27.17 16.22		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 18.20	U	1
C10-C28 Diesel Range Organics	C10C28DRO	**328**	15.0	mg/kg	06.24.17 18.20		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	**81.3**	15.0	mg/kg	06.24.17 18.20		1
Total TPH	PHC635	**409**	15.0	mg/kg	06.24.17 18.20		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	06.24.17 18.20	
o-Terphenyl	84-15-1	103	%	70-135	06.24.17 18.20	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**East - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-005	Date Collected:	06.14.17 10.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
m_p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.26.17 23.40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	80-120	06.26.17 23.40	
1,4-Difluorobenzene	540-36-3	96	%	80-120	06.26.17 23.40	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**East - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-006	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**61.2**	4.92	mg/kg	06.27.17 16.44		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 18.40	U	1
C10-C28 Diesel Range Organics	C10C28DRO	**43.1**	15.0	mg/kg	06.24.17 18.40		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 18.40	U	1
Total TPH	PHC635	**43.1**	15.0	mg/kg	06.24.17 18.40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	06.24.17 18.40	
o-Terphenyl	84-15-1	105	%	70-135	06.24.17 18.40	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**East - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-006	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.26.17 23.56	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	80-120	06.26.17 23.56	
1,4-Difluorobenzene	540-36-3	107	%	80-120	06.26.17 23.56	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**West - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-007	Date Collected:	06.14.17 10.30		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**455**	4.97	mg/kg	06.27.17 16.52		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 19.00	U	1
C10-C28 Diesel Range Organics	C10C28DRO	**22.2**	15.0	mg/kg	06.24.17 19.00		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 19.00	U	1
Total TPH	PHC635	**22.2**	15.0	mg/kg	06.24.17 19.00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	06.24.17 19.00	
o-Terphenyl	84-15-1	105	%	70-135	06.24.17 19.00	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**West - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-007	Date Collected:	06.14.17 10.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.27.17 00.12	U	1
Toluene	108-88-3	**0.00412**	0.00198	mg/kg	06.27.17 00.12		1
Ethylbenzene	100-41-4	**0.00366**	0.00198	mg/kg	06.27.17 00.12		1
m_p-Xylenes	179601-23-1	**0.0101**	0.00396	mg/kg	06.27.17 00.12		1
o-Xylene	95-47-6	**0.00798**	0.00198	mg/kg	06.27.17 00.12		1
Total Xylenes	1330-20-7	**0.0181**	0.00198	mg/kg	06.27.17 00.12		1
Total BTEX		**0.0259**	0.00198	mg/kg	06.27.17 00.12		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	91	%	80-120	06.27.17 00.12	
1,4-Difluorobenzene	540-36-3	112	%	80-120	06.27.17 00.12	

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**West - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-008	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**25.8**	4.98	mg/kg	06.27.17 17.00		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 19.20	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 19.20	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 19.20	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 19.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	06.24.17 19.20	
o-Terphenyl	84-15-1	103	%	70-135	06.24.17 19.20	

Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**West - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-008	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
m_p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.27.17 00.28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	113	%	80-120	06.27.17 00.28	
1,4-Difluorobenzene	540-36-3	98	%	80-120	06.27.17 00.28	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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

QC Summary 555791

COG Operating LLC

Gettysburg State #1 H

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3020942 Matrix: Solid Date Prep: 06.27.17
MB Sample Id: 726858-1-BLK LCS Sample Id: 726858-1-BKS LCSD Sample Id: 726858-1-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	241	96	235	94	90-110	3	20	mg/kg	06.27.17 15:21	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3020942 Matrix: Soil Date Prep: 06.27.17
Parent Sample Id: 555791-001 MS Sample Id: 555791-001 S MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	545	246	770	91	768	91	90-110	0	20	mg/kg	06.27.17 15:44	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3020942 Matrix: Soil Date Prep: 06.27.17
Parent Sample Id: 555794-003 MS Sample Id: 555794-003 S MSD Sample Id: 555794-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	286	114	284	114	90-110	1	20	mg/kg	06.27.17 17:30	X

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3020966 Matrix: Solid Date Prep: 06.24.17
MB Sample Id: 726684-1-BLK LCS Sample Id: 726684-1-BKS LCSD Sample Id: 726684-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1190	119	1060	106	70-135	12	35	mg/kg	06.24.17 14:08	
C10-C28 Diesel Range Organics	<15.0	1000	1140	114	1020	102	70-135	11	35	mg/kg	06.24.17 14:08	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	79		118		110		70-135	%	06.24.17 14:08
o-Terphenyl	85		117		108		70-135	%	06.24.17 14:08

QC Summary 555791

COG Operating LLC

Gettysburg State #1 H

Analytical Method: TPH By SW8015 Mod | Prep Method: TX1005P
Seq Number: 3020966 | Matrix: Soil | Date Prep: 06.24.17
Parent Sample Id: 555791-001 | MS Sample Id: 555791-001 S | MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1090	109	1020	102	70-135	7	35	mg/kg	06.24.17 16:39	
C10-C28 Diesel Range Organics	<15.0	1000	1080	108	1060	106	70-135	2	35	mg/kg	06.24.17 16:39	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		104		70-135	%	06.24.17 16:39
o-Terphenyl	85		102		70-135	%	06.24.17 16:39

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3020734 | Matrix: Solid | Date Prep: 06.26.17
MB Sample Id: 726754-1-BLK | LCS Sample Id: 726754-1-BKS | LCSD Sample Id: 726754-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0935	94	0.0918	92	70-130	2	35	mg/kg	06.26.17 12:13	
Toluene	<0.00199	0.0994	0.0853	86	0.0865	87	70-130	1	35	mg/kg	06.26.17 12:13	
Ethylbenzene	<0.00199	0.0994	0.0942	95	0.0913	91	71-129	3	35	mg/kg	06.26.17 12:13	
m_p-Xylenes	<0.00398	0.199	0.169	85	0.165	83	70-135	2	35	mg/kg	06.26.17 12:13	
o-Xylene	<0.00199	0.0994	0.0902	91	0.0885	89	71-133	2	35	mg/kg	06.26.17 12:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		96		82		80-120	%	06.26.17 12:13
4-Bromofluorobenzene	101		96		94		80-120	%	06.26.17 12:13

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3020817 | Matrix: Solid | Date Prep: 06.26.17
MB Sample Id: 726772-1-BLK | LCS Sample Id: 726772-1-BKS | LCSD Sample Id: 726772-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.107	108	0.101	101	70-130	6	35	mg/kg	06.26.17 21:15	
Toluene	<0.00199	0.0994	0.0991	100	0.103	103	70-130	4	35	mg/kg	06.26.17 21:15	
Ethylbenzene	<0.00199	0.0994	0.106	107	0.106	106	71-129	0	35	mg/kg	06.26.17 21:15	
m_p-Xylenes	<0.00398	0.199	0.193	97	0.185	93	70-135	4	35	mg/kg	06.26.17 21:15	
o-Xylene	<0.00199	0.0994	0.108	109	0.103	103	71-133	5	35	mg/kg	06.26.17 21:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		110		87		80-120	%	06.26.17 21:15
4-Bromofluorobenzene	87		118		90		80-120	%	06.26.17 21:15

QC Summary 555791

COG Operating LLC

Gettysburg State #1 H

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

Seq Number: 3020734 Matrix: Soil Date Prep: 06.26.17

Parent Sample Id: 555791-001 MS Sample Id: 555791-001 S MSD Sample Id: 555791-001 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	0.0790	79	0.0885	89	70-130	11	35	mg/kg	06.26.17 12:46	
Toluene	<0.00200	0.100	0.0770	77	0.0778	78	70-130	1	35	mg/kg	06.26.17 12:46	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.0862	87	71-129	4	35	mg/kg	06.26.17 12:46	
m_p-Xylenes	<0.00401	0.200	0.149	75	0.152	76	70-135	2	35	mg/kg	06.26.17 12:46	
o-Xylene	<0.00200	0.100	0.0837	84	0.0870	87	71-133	4	35	mg/kg	06.26.17 12:46	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		105		80-120	%	06.26.17 12:46
4-Bromofluorobenzene	120		110		80-120	%	06.26.17 12:46

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

Seq Number: 3020817 Matrix: Soil Date Prep: 06.26.17

Parent Sample Id: 555831-002 MS Sample Id: 555831-002 S MSD Sample Id: 555831-002 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	0.0955	96	0.0951	95	70-130	0	35	mg/kg	06.26.17 21:47	
Toluene	<0.00200	0.100	0.0847	85	0.0843	84	70-130	0	35	mg/kg	06.26.17 21:47	
Ethylbenzene	<0.00200	0.100	0.0884	88	0.0942	94	71-129	6	35	mg/kg	06.26.17 21:47	
m_p-Xylenes	<0.00401	0.200	0.165	83	0.168	84	70-135	2	35	mg/kg	06.26.17 21:47	
o-Xylene	<0.00200	0.100	0.0900	90	0.101	101	71-133	12	35	mg/kg	06.26.17 21:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	119		119		80-120	%	06.26.17 21:47
4-Bromofluorobenzene	116		119		80-120	%	06.26.17 21:47

CHAIN OF CUSTODY

Page ___ Of ___

XENCO LABORATORIES

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Xenco Quote # | Xenco Job # 555791

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Gettysburg State #11H
Project Location: Gettysburg St #11H
Invoice To: COG Operating LLC
Attn: Robert Mcneill
600 W. Illinois
Midland TX 79701
PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8TE+DRO	BTEX	Chloride	Field Comments
1	North- Surf	—	6-14-17	10:30	S	1									X	X	X	
2	North- 1'	1				1									X	X	X	
3	South- Surf	—				1									X	X	X	
4	South- 1'	1				1									X	X	X	
5	East- Surf	—				1									X	X	X	
6	East - 1'	1				1									X	X	X	
7	West- Surf	—				1									X	X	X	
8	West- 1'	1																
9																		
10																		

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:

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		6-14-17 10:30	A. Sid Butler 10:30am 6-14-17	2 Sid Butler 11:45 6-19-17		2 6/20/17 10:05
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice: Cooler Temp. 4.0c Thermo. Corr. Factor

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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 06/20/2017 10:05:00 AM

Work Order #: 555791

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

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

Analyst: PH Device/Lot#:

Checklist completed by: Jessica Kramer Date: 06/21/2017
Jessica Kramer

Checklist reviewed by: Kelsey Brooks Date: 06/21/2017
Kelsey Brooks

Certificate of Analysis Summary 555794

COG Operating LLC, Artesia, NM

Project Name: Gettysburg State #1 H

Project Id:
Contact: Aaron Lieb
Project Location: Getysburg ST. # 1 H

Date Received in Lab: Tue Jun-20-17 10:05 am
Report Date: 28-JUN-17
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	555794-001		555794-002		555794-003		555794-004		555794-005	
	Field Id:	TI - Surf		TI - 1'		TI - 2'		TI - 3'		TI - 4'	
	Depth:			1 ft		2 ft		3 ft		4 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-14-17 09:00		Jun-14-17 09:00		Jun-14-17 09:00		Jun-14-17 09:00		Jun-14-17 09:00	
BTEX by EPA 8021B	***Extracted:***	Jun-27-17 10:30		Jun-26-17 16:30		Jun-27-17 10:30		Jun-26-17 11:00		Jun-26-17 11:00	
	Analyzed:	Jun-27-17 14:42		Jun-27-17 08:29		Jun-27-17 14:58		Jun-26-17 17:45		Jun-26-17 17:28	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		27.3	0.998	<0.00200	0.00200	23.4	1.00	<0.00200	0.00200	<0.00202	0.00202
Toluene		198	0.998	0.00525	0.00200	190	1.00	<0.00200	0.00200	<0.00202	0.00202
Ethylbenzene		133	0.998	<0.00200	0.00200	88.3	1.00	<0.00200	0.00200	<0.00202	0.00202
m_p-Xylenes		258	2.00	0.00438	0.00400	168	2.01	<0.00399	0.00399	<0.00403	0.00403
o-Xylene		109	0.998	<0.00200	0.00200	63.2	1.00	<0.00200	0.00200	<0.00202	0.00202
Total Xylenes		367	0.998	0.00438	0.00200	231	1.00	<0.00200	0.00200	<0.00202	0.00202
Total BTEX		725	0.998	0.00963	0.00200	533	1.00	<0.00200	0.00200	<0.00202	0.00202
Chloride by EPA 300	***Extracted:***	Jun-27-17 12:00		Jun-27-17 12:00		Jun-27-17 12:00		Jun-27-17 12:00		Jun-27-17 12:00	
	Analyzed:	Jun-27-17 17:07		Jun-27-17 17:15		Jun-27-17 17:22		Jun-27-17 17:45		Jun-27-17 17:53	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		307	4.97	<4.98	4.98	<5.00	5.00	38.8	4.92	88.7	5.00
TPH By SW8015 Mod	***Extracted:***	Jun-24-17 12:00		Jun-24-17 12:00		Jun-24-17 12:00		Jun-24-17 12:00		Jun-24-17 12:00	
	Analyzed:	Jun-24-17 19:41		Jun-24-17 20:02		Jun-24-17 21:04		Jun-24-17 21:25		Jun-24-17 21:46	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		13700	75.0	<15.0	15.0	4740	15.0	<15.0	15.0	<15.0	15.0
C10-C28 Diesel Range Organics		22800	75.0	<15.0	15.0	4960	15.0	<15.0	15.0	<15.0	15.0
C28-C35 Oil Range Hydrocarbons		2730	75.0	<15.0	15.0	798	15.0	<15.0	15.0	<15.0	15.0
Total TPH		74800	75.0	<15.0	15.0	20200	15.0	<15.0	15.0	<15.0	15.0

Kelsey Brooks
Project Manager

Analytical Report 555794

for

COG Operating LLC

Project Manager: Aaron Lieb

Gettysburg State #1 H

28-JUN-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

28-JUN-17

Project Manager: **Aaron Lieb**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **555794**
Gettysburg State #1 H
Project Address: Getysburg ST. # 1 H

Aaron Lieb:

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) 555794. 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. 555794 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 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TI - Surf	S	06-14-17 09:00		555794-001
TI - 1'	S	06-14-17 09:00	- 1 ft	555794-002
TI - 2'	S	06-14-17 09:00	- 2 ft	555794-003
TI - 3'	S	06-14-17 09:00	- 3 ft	555794-004
TI - 4'	S	06-14-17 09:00	- 4 ft	555794-005

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Gettysburg State #1 H

Project ID:
Work Order Number(s): *555794*

Report Date: *28-JUN-17*
Date Received: *06/20/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3020734 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3020817 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3020887 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3020942 Chloride by EPA 300
Lab Sample ID 555794-003 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 555794-001, -002, -003, -004, -005.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-001	Date Collected:	06.14.17 09.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**307**	4.97	mg/kg	06.27.17 17.07		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	**13700**	75.0	mg/kg	06.24.17 19.41		5
C10-C28 Diesel Range Organics	C10C28DRO	**22800**	75.0	mg/kg	06.24.17 19.41		5
C28-C35 Oil Range Hydrocarbons	PHCG2835	**2730**	75.0	mg/kg	06.24.17 19.41		5
Total TPH	PHC635	**74800**	75.0	mg/kg	06.24.17 19.41		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	06.24.17 19.41	
o-Terphenyl	84-15-1	91	%	70-135	06.24.17 19.41	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - Surf**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-001	Date Collected:	06.14.17 09.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.27.17 10.30	Basis:	Wet Weight
Seq Number:	3020887				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**27.3**	0.998	mg/kg	06.27.17 14.42		500
Toluene	108-88-3	**198**	0.998	mg/kg	06.27.17 14.42		500
Ethylbenzene	100-41-4	**133**	0.998	mg/kg	06.27.17 14.42		500
m_p-Xylenes	179601-23-1	**258**	2.00	mg/kg	06.27.17 14.42		500
o-Xylene	95-47-6	**109**	0.998	mg/kg	06.27.17 14.42		500
Total Xylenes	1330-20-7	**367**	0.998	mg/kg	06.27.17 14.42		500
Total BTEX		**725**	0.998	mg/kg	06.27.17 14.42		500

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	87	%	80-120	06.27.17 14.42	
1,4-Difluorobenzene	540-36-3	87	%	80-120	06.27.17 14.42	

Final 1.000

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-002	Date Collected:	06.14.17 09.00	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	06.27.17 17.15	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 20.02	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 20.02	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 20.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 20.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	06.24.17 20.02	
o-Terphenyl	84-15-1	98	%	70-135	06.24.17 20.02	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 1'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-002	Date Collected:	06.14.17 09.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 16.30	Basis:	Wet Weight
Seq Number:	3020817				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.17 08.29	U	1
Toluene	108-88-3	**0.00525**	0.00200	mg/kg	06.27.17 08.29		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.17 08.29	U	1
m_p-Xylenes	179601-23-1	**0.00438**	0.00400	mg/kg	06.27.17 08.29		1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.17 08.29	U	1
Total Xylenes	1330-20-7	**0.00438**	0.00200	mg/kg	06.27.17 08.29		1
Total BTEX		**0.00963**	0.00200	mg/kg	06.27.17 08.29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	83	%	80-120	06.27.17 08.29	
4-Bromofluorobenzene	460-00-4	88	%	80-120	06.27.17 08.29	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 2'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-003	Date Collected:	06.14.17 09.00	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	06.27.17 17.22	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	**4740**	15.0	mg/kg	06.24.17 21.04		1
C10-C28 Diesel Range Organics	C10C28DRO	**4960**	15.0	mg/kg	06.24.17 21.04		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	**798**	15.0	mg/kg	06.24.17 21.04		1
Total TPH	PHC635	**20200**	15.0	mg/kg	06.24.17 21.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	125	%	70-135	06.24.17 21.04	
o-Terphenyl	84-15-1	96	%	70-135	06.24.17 21.04	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 2'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-003	Date Collected:	06.14.17 09.00	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.27.17 10.30	Basis:	Wet Weight
Seq Number:	3020887				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**23.4**	1.00	mg/kg	06.27.17 14.58		500
Toluene	108-88-3	**190**	1.00	mg/kg	06.27.17 14.58		500
Ethylbenzene	100-41-4	**88.3**	1.00	mg/kg	06.27.17 14.58		500
m_p-Xylenes	179601-23-1	**168**	2.01	mg/kg	06.27.17 14.58		500
o-Xylene	95-47-6	**63.2**	1.00	mg/kg	06.27.17 14.58		500
Total Xylenes	1330-20-7	**231**	1.00	mg/kg	06.27.17 14.58		500
Total BTEX		**533**	1.00	mg/kg	06.27.17 14.58		500

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	83	%	80-120	06.27.17 14.58	
1,4-Difluorobenzene	540-36-3	100	%	80-120	06.27.17 14.58	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 3'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-004	Date Collected:	06.14.17 09.00	Sample Depth:	3 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**38.8**	4.92	mg/kg	06.27.17 17.45		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 21.25	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 21.25	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 21.25	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 21.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	06.24.17 21.25	
o-Terphenyl	84-15-1	104	%	70-135	06.24.17 21.25	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 3'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-004	Date Collected:	06.14.17 09.00	Sample Depth:	3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 11.00	Basis:	Wet Weight
Seq Number:	3020734				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
m_p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.26.17 17.45	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	80-120	06.26.17 17.45	
1,4-Difluorobenzene	540-36-3	105	%	80-120	06.26.17 17.45	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 4'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-005	Date Collected:	06.14.17 09.00	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	06.27.17 12.00	Basis:	Wet Weight
Seq Number:	3020942				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**88.7**	5.00	mg/kg	06.27.17 17.53		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	06.24.17 12.00	Basis:	Wet Weight
Seq Number:	3020966				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 21.46	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 21.46	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 21.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 21.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	06.24.17 21.46	
o-Terphenyl	84-15-1	112	%	70-135	06.24.17 21.46	

Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id:	**TI - 4'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-005	Date Collected:	06.14.17 09.00	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	06.26.17 11.00	Basis:	Wet Weight
Seq Number:	3020734				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
m_p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.26.17 17.28	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	98	%	80-120	06.26.17 17.28	
4-Bromofluorobenzene	460-00-4	110	%	80-120	06.26.17 17.28	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3020942 Matrix: Solid Date Prep: 06.27.17
MB Sample Id: 726858-1-BLK LCS Sample Id: 726858-1-BKS LCSD Sample Id: 726858-1-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	241	96	235	94	90-110	3	20	mg/kg	06.27.17 15:21	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3020942 Matrix: Soil Date Prep: 06.27.17
Parent Sample Id: 555791-001 MS Sample Id: 555791-001 S MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	545	246	770	91	768	91	90-110	0	20	mg/kg	06.27.17 15:44	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3020942 Matrix: Soil Date Prep: 06.27.17
Parent Sample Id: 555794-003 MS Sample Id: 555794-003 S MSD Sample Id: 555794-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	286	114	284	114	90-110	1	20	mg/kg	06.27.17 17:30	X

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3020966 Matrix: Solid Date Prep: 06.24.17
MB Sample Id: 726684-1-BLK LCS Sample Id: 726684-1-BKS LCSD Sample Id: 726684-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1190	119	1060	106	70-135	12	35	mg/kg	06.24.17 14:08	
C10-C28 Diesel Range Organics	<15.0	1000	1140	114	1020	102	70-135	11	35	mg/kg	06.24.17 14:08	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	79		118		110		70-135	%	06.24.17 14:08
o-Terphenyl	85		117		108		70-135	%	06.24.17 14:08

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

Analytical Method: TPH By SW8015 Mod | Prep Method: TX1005P
Seq Number: 3020966 | Matrix: Soil | Date Prep: 06.24.17
Parent Sample Id: 555791-001 | MS Sample Id: 555791-001 S | MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1090	109	1020	102	70-135	7	35	mg/kg	06.24.17 16:39	
C10-C28 Diesel Range Organics	<15.0	1000	1080	108	1060	106	70-135	2	35	mg/kg	06.24.17 16:39	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		104		70-135	%	06.24.17 16:39
o-Terphenyl	85		102		70-135	%	06.24.17 16:39

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3020734 | Matrix: Solid | Date Prep: 06.26.17
MB Sample Id: 726754-1-BLK | LCS Sample Id: 726754-1-BKS | LCSD Sample Id: 726754-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0935	94	0.0918	92	70-130	2	35	mg/kg	06.26.17 12:13	
Toluene	<0.00199	0.0994	0.0853	86	0.0865	87	70-130	1	35	mg/kg	06.26.17 12:13	
Ethylbenzene	<0.00199	0.0994	0.0942	95	0.0913	91	71-129	3	35	mg/kg	06.26.17 12:13	
m_p-Xylenes	<0.00398	0.199	0.169	85	0.165	83	70-135	2	35	mg/kg	06.26.17 12:13	
o-Xylene	<0.00199	0.0994	0.0902	91	0.0885	89	71-133	2	35	mg/kg	06.26.17 12:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		96		82		80-120	%	06.26.17 12:13
4-Bromofluorobenzene	101		96		94		80-120	%	06.26.17 12:13

Analytical Method: BTEX by EPA 8021B | Prep Method: SW5030B
Seq Number: 3020817 | Matrix: Solid | Date Prep: 06.26.17
MB Sample Id: 726772-1-BLK | LCS Sample Id: 726772-1-BKS | LCSD Sample Id: 726772-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.107	108	0.101	101	70-130	6	35	mg/kg	06.26.17 21:15	
Toluene	<0.00199	0.0994	0.0991	100	0.103	103	70-130	4	35	mg/kg	06.26.17 21:15	
Ethylbenzene	<0.00199	0.0994	0.106	107	0.106	106	71-129	0	35	mg/kg	06.26.17 21:15	
m_p-Xylenes	<0.00398	0.199	0.193	97	0.185	93	70-135	4	35	mg/kg	06.26.17 21:15	
o-Xylene	<0.00199	0.0994	0.108	109	0.103	103	71-133	5	35	mg/kg	06.26.17 21:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		110		87		80-120	%	06.26.17 21:15
4-Bromofluorobenzene	87		118		90		80-120	%	06.26.17 21:15

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3020887 — Matrix: Solid — Date Prep: 06.27.17
MB Sample Id: 726832-1-BLK — LCS Sample Id: 726832-1-BKS — LCSD Sample Id: 726832-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0945	95	0.0920	92	70-130	3	35	mg/kg	06.26.17 12:13	
Toluene	<0.00201	0.100	0.0862	86	0.0867	87	70-130	1	35	mg/kg	06.26.17 12:13	
Ethylbenzene	<0.00201	0.100	0.0951	95	0.0915	92	71-129	4	35	mg/kg	06.26.17 12:13	
m_p-Xylenes	<0.00402	0.201	0.170	85	0.165	83	70-135	3	35	mg/kg	06.26.17 12:13	
o-Xylene	<0.00201	0.100	0.0911	91	0.0887	89	71-133	3	35	mg/kg	06.26.17 12:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		96		82		80-120	%	06.26.17 12:13
4-Bromofluorobenzene	101		96		94		80-120	%	06.26.17 12:13

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3020734 — Matrix: Soil — Date Prep: 06.26.17
Parent Sample Id: 555791-001 — MS Sample Id: 555791-001 S — MSD Sample Id: 555791-001 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	0.0790	79	0.0885	89	70-130	11	35	mg/kg	06.26.17 12:46	
Toluene	<0.00200	0.100	0.0770	77	0.0778	78	70-130	1	35	mg/kg	06.26.17 12:46	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.0862	87	71-129	4	35	mg/kg	06.26.17 12:46	
m_p-Xylenes	<0.00401	0.200	0.149	75	0.152	76	70-135	2	35	mg/kg	06.26.17 12:46	
o-Xylene	<0.00200	0.100	0.0837	84	0.0870	87	71-133	4	35	mg/kg	06.26.17 12:46	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		105		80-120	%	06.26.17 12:46
4-Bromofluorobenzene	120		110		80-120	%	06.26.17 12:46

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3020817 — Matrix: Soil — Date Prep: 06.26.17
Parent Sample Id: 555831-002 — MS Sample Id: 555831-002 S — MSD Sample Id: 555831-002 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	0.0955	96	0.0951	95	70-130	0	35	mg/kg	06.26.17 21:47	
Toluene	<0.00200	0.100	0.0847	85	0.0843	84	70-130	0	35	mg/kg	06.26.17 21:47	
Ethylbenzene	<0.00200	0.100	0.0884	88	0.0942	94	71-129	6	35	mg/kg	06.26.17 21:47	
m_p-Xylenes	<0.00401	0.200	0.165	83	0.168	84	70-135	2	35	mg/kg	06.26.17 21:47	
o-Xylene	<0.00200	0.100	0.0900	90	0.101	101	71-133	12	35	mg/kg	06.26.17 21:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	119		119		80-120	%	06.26.17 21:47
4-Bromofluorobenzene	116		119		80-120	%	06.26.17 21:47

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

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

Seq Number: 3020887 Matrix: Soil Date Prep: 06.27.17

Parent Sample Id: 555831-003 MS Sample Id: 555831-003 S MSD Sample Id: 555831-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0799	79	0.0923	91	70-130	14	35	mg/kg	06.27.17 11:42	
Toluene	0.00356	0.101	0.0932	89	0.119	114	70-130	24	35	mg/kg	06.27.17 11:42	
Ethylbenzene	<0.00202	0.101	0.0777	77	0.0925	92	71-129	17	35	mg/kg	06.27.17 11:42	
m_p-Xylenes	0.00978	0.202	0.161	75	0.200	95	70-135	22	35	mg/kg	06.27.17 11:42	
o-Xylene	0.00360	0.101	0.0806	76	0.100	95	71-133	21	35	mg/kg	06.27.17 11:42	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		94		80-120	%	06.27.17 11:42
4-Bromofluorobenzene	82		97		80-120	%	06.27.17 11:42

CHAIN OF CUSTODY

Page ___ Of ___

XENCO LABORATORIES

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Xenco Quote # | Xenco Job # 555794

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Gettysburg State # 1 1T
Project Location: Gettysburg St. # 1 1T
Invoice To: COG Operating LLC
Attn: Robert Mcneill
600 W. Illinois
Midland TX 79701
PO Number:

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Analytical Information: TPH EXTENDED	BTEX	Chloride	Field Comments
1	T1- SURF	-	6/14/17	9:00 AM	S	1									X	X	X	
2	T1- 1'	1				1									X	X	X	
3	T1- 2'	2				1									X	X	X	
4	T1- 3'	3				1									X	X	X	
5	T1- 4'	4				1									X	X	X	
6																		
7																		
8																		
9																		
10																		

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:

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		6-19-17 10:00 AM				
2			1 Sid Butler 10:00 AM 6-19-17	2 Sid Butler	11:45a 6-19-17	2 6/20/17
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice ☐ Cooler Temp. 4.0C Thermo. Corr. Factor

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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 06/20/2017 10:05:00 AM

Work Order #: 555794

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

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

Analyst: PH Device/Lot#:

Checklist completed by: Jessica Kramer Date: 06/21/2017
Jessica Kramer

Checklist reviewed by: Kelsey Brooks Date: 06/21/2017
Kelsey Brooks