

SITE INFORMATION

Report Type: Work Plan 2 RP 4288

General Site Information:

Site:	SRO State Com #018H					
Company:	COG Operating LLC					
Section, Township and Range	Unit A	Sec. 17	T 26S	R 28E		
Lease Number:	API No. 30-015-39999					
County:	Eddy County					
GPS:	32.049943			104.100937		
Surface Owner:	State					
Mineral Owner:	State					
Directions:	West of Mile marker 5 off 285 two miles, turn left just before the third cattle guard, go 3/4 mile take first right, op. 1/4 mile to trunk line crossing to battery take road to north tin horn at leak					

Release Data:

Date Released:	7/4/2017
Type Release:	Oil and Produced Water
Source of Contamination:	Flowline
Fluid Released:	0.5 bbls Oil and 30 bbl water
Fluids Recovered:	5 bbls water

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) 686-3023	(432) 687-8110
Fax:	(432) 684-7137	
Email:	rmcneil@conchoresources.com	Ike.Tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	Less 50'
50-99 ft	10	
>100 ft.	20	
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:		20

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	100



September 19, 2017

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
1301 West Grand Avenue
Artesia, New Mexico 88210

Re: Assessment and Work Plan for the COG Operating LLC., SRO State Unit Com #0018, Unit A, Section 17, Township 26 South, Range 28 East, Eddy County, New Mexico. (2 RP 4288)

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to prepare a work plan for a spill from the SRO State Unit Com 102 SWD, Unit G, Section 16, Township 26 South, Range 28 East, Eddy County, New Mexico. (Site). The spill site coordinates are N 32.049943°, W 104.100937°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division Form C-141 Initial Report, the leak was discovered on July 4, 2017, and released approximately 0.5 barrels of oil and 30 barrels of produced water due to a pin hole in the check valve on the water transfer line. Approximately 5 barrels of produced water was recovered from the spill area. The release occurred in the pasture and measured approximately 15' x 80'. The initial Form C-141 is enclosed in Appendix A.

Groundwater

According to the State Engineer Office, no water wells are listed in Section 17. However, water wells were reported in Section 02, 12, 14, and 22, with groundwater depths of 120', 100', 120' and 120', respectively. According to the Chevron Texaco Depth to Groundwater Trend map, the depth to groundwater in the area shows to be less than 50' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.com

Regulatory

A risk-based evaluation was performed for the Site in accordance with the 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 100 mg/kg.

Soil Assessment

On August 7, 2017, COG personnel were onsite to inspect and sample the spill area. Two (2) trenches (T-1 and T-2) were installed using a trackhoe to assess the impacted soils. In addition, soil samples (North, South, East and West) were collected to define the horizontal extents. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The sampling results are summarized in Table 1. The trench locations are shown on Figure 3. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C.

Referring to Table 1, all of the samples analyzed showed benzene and total BTEX concentrations below the RRAL's. However, the areas of trenches (T-1 and T-2) showed TPH concentrations of 1,720 mg/kg and 895 mg/kg at surface. The TPH concentrations declined with depth to below the RRAL at 1.0' (T-1) and 2.0' (T-2) and showed bottom trench concentrations of <15.0 mg/kg.

Elevated chloride concentrations were detected in the subsurface soils with chloride concentrations ranging from 159 mg/kg (T-2 at 12') to 12,800 mg/kg (T-1 at surface). Both trenches declined with depth and showed bottom trench samples of 210 mg/kg at 17' and 359 mg/kg at 15-16' below surface, respectively.

The horizontal samples (North, South, East and West) did not show any TPH, benzene, or total BTEX concentrations above the RRAL's or any significant chloride concentrations in the soils.

Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The proposed excavation will remove the majority of elevated chloride impact from the area. The area of trench (T-1) will be excavated to a depth of approximately 4.0' below surface and capped with 40 mil liner. The area of trench (T-2) will be excavated to a depth of approximately 6' below surface to remove the chloride impacted soils. Once excavated to the appropriate depth, the areas will be backfilled with clean material to grade. All of the excavated soil will be hauled to 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 safety concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

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

A handwritten signature in blue ink, appearing to read 'Ike Tavarez'.

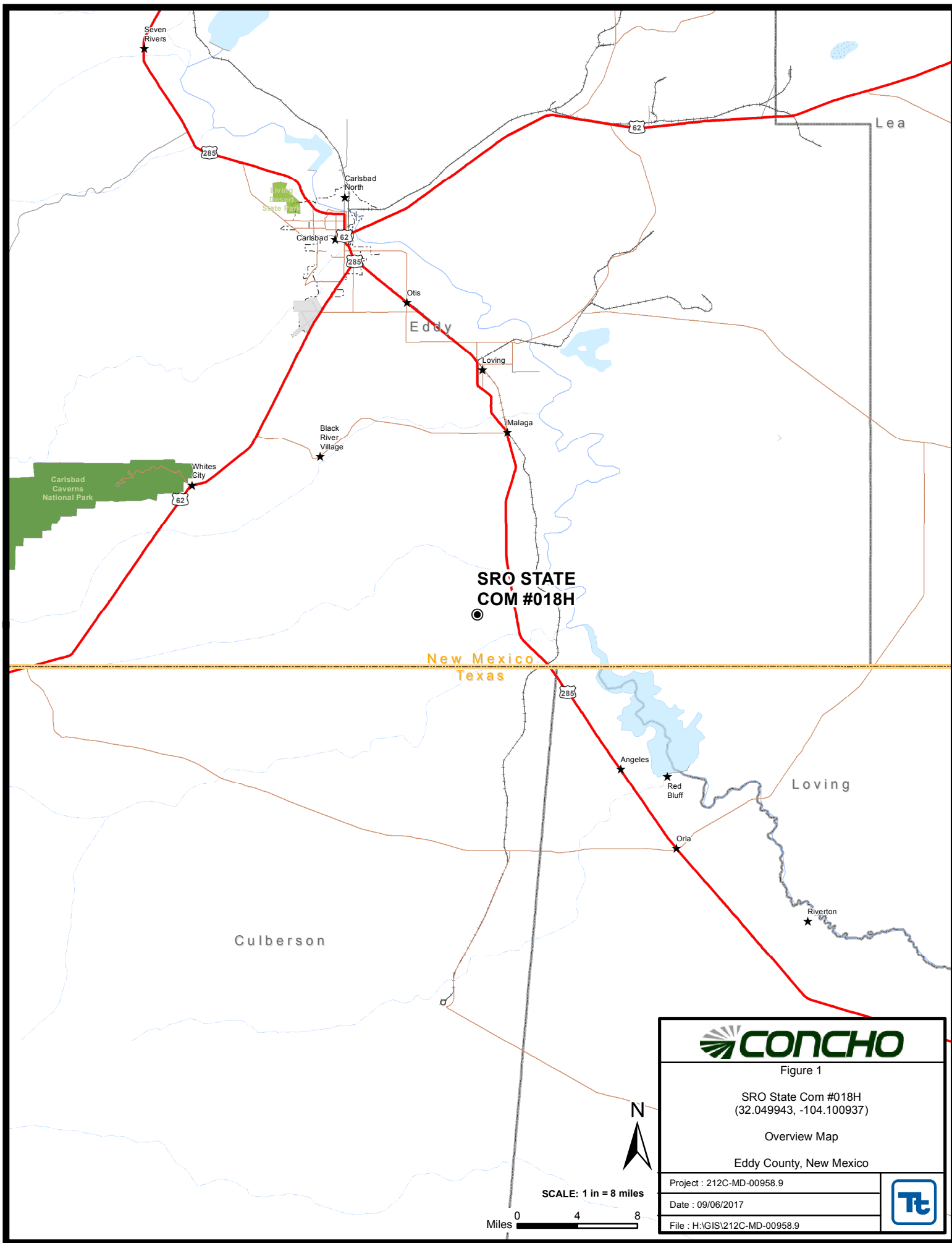
Ike Tavarez, PG
Senior Project Manager

A handwritten signature in blue ink, appearing to read 'Clair Gonzales'.

Clair Gonzales,
Geologist I

cc: Robert McNeill – COG
Dakota Neel
Shelly Tucker – BLM

Figures





SPILL AREA
(30'x150')

NORTH

WEST

EAST

SOUTH

T-1

T-2

EXPLANATION

-  TRENCH SAMPLE LOCATIONS
-  SPILL AREA



Figure 3

SRO State Com #018H
(32.049943, -104.100937)

Spill Assessment Map

Eddy County, Texas

Project : 212C-MD-00958.9

Date : 09/06/2017

File : H:\GIS\212C-MD-00958.9



Source: Esri, DigitalGlobe, GeoEye, USDA, USGS, AEX, Getmapping, User Community, Esri, HERE, DeLorme, and the U.S. Coast Guard Community

Scale: 1 IN = 100 FEET

0 50 100 Feet



EXPLANATION

- TRENCH SAMPLE LOCATIONS
- PROPOSED EXCAVATION AREAS
- PROPOSED INSTALLED LINER

Source: Esri, DigitalGlobe, GeoEye, USDA, USGS, AEX, Getmapping, User Community, Esri, HERE, DeLorme, and the U.S. Coast Guard Community

SCALE: 1 IN = 100 FEET

0 50 100 Feet



Figure 4

SRO State Com #018H
(32.049943, -104.100937)

Proposed Excavation Areas & Depths Map

Eddy County, Texas

Project : 212C-MD-00958.9

Date : 09/06/2017

File : H:\GIS\212C-MD-00958.9



Tables

Table 1
COG Operating LLC.
SRO State Com #018H
Eddy 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	8/7/2017	Surface	X		<15.0	1250	474	1720	<0.00199	<0.00199	<0.00199	0.0127	0.0127	12800
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	0.00872	0.00872	11200
	"	2	X		<15.0	62.5	<15.0	62.5	<0.00200	<0.00200	0.00531	0.0689	0.0742	10600
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	6850
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	6310
	"	6	X		-		-	-	-	-	-	-	-	5320
	"	8	X		-		-	-	-	-	-	-	-	2650
	"	10	X		-		-	-	-	-	-	-	-	1200
	"	12	X		-		-	-	-	-	-	-	-	1250
	"	14	X		-		-	-	-	-	-	-	-	285
	"	17	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	210
T-2	8/7/2017	Surface	X		175	622	97.9	895	<0.00200	0.298	0.289	0.455	1.04	8150
	"	1	X		42.0	227	<15.0	269	<0.00199	0.0121	0.0415	0.394	0.448	8450
	"	2	X		<15.0	32.2	<15.0	32.2	<0.00200	<0.00200	<0.00200	0.0178	0.0178	9740
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	0.00780	0.00780	9750
	"	4	X		<14.9	<14.9	<14.9	<14.9	<0.00202	<0.00202	<0.00202	0.00323	0.00323	4370
	"	6	X		-		-	-	-	-	-	-	-	1420
	"	8	X		-		-	-	-	-	-	-	-	470
	"	10	X		-		-	-	-	-	-	-	-	349
	"	12	X		-		-	-	-	-	-	-	-	159
	"	14	X		-		-	-	-	-	-	-	-	280
	"	15-16	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	359
North	8/7/2017	Surface	X		<14.9	<14.9	<14.9	<14.9	0.0167	0.00324	<0.00202	0.0108	0.0308	9.36
	"	1	X		<15.0	<15.0	<15.0	<15.0	0.0185	0.0298	0.00460	0.0145	0.0674	27.0
South	8/7/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	0.00409	<0.00200	<0.00200	0.00251	0.00660	<5.00
	"	1	X		<15.0	<15.0	<15.0	<15.0	0.0112	0.0210	0.00284	0.0120	0.0470	17.0
East	8/7/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	0.00254	0.00254	<4.94
	"	1	X		<15.0	<15.0	<15.0	<15.0	0.00269	0.00558	<0.00199	<0.00199	0.00827	<4.97
West	8/7/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00337	<0.00337	<0.00337	<0.00337	<0.00337	<4.95
	"	1	X		<15.0	<15.0	<15.0	<15.0	0.00864	0.0132	<0.00202	0.00871	0.0306	<4.94

(-)

Not Analyzed

Proposed Excavation Depth

Liner Installation

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: SRO State Com #018H	Facility Type: Flowline

Surface Owner: State	Mineral Owner: State	API No. 30-015-39999
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LOCATION OF RELEASE

Unit Letter A	Section 17	Township 26S	Range 28E	Feet from the 330	North/South Line North	Feet from the 330	East/West Line East	County Eddy
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Latitude 32.049943 Longitude -104.100937

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 0.5 bbl. Oil & 30 bbl. PW	Volume Recovered: 5 bbl. Produced Water
Source of Release: Flowline	Date and Hour of Occurrence: July 4, 2017 11:00 am	Date and Hour of Discovery: July 4, 2017 11:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Weaver – NOMCD / Ms. Groves – SLO	
By Whom? Aaron Lieb	Date and Hour: July 5, 2017 8:12 am	
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 due to a pin hole in the side of a check valve on the water transfer line. The check valve was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release occurred in the pasture. 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: <i>Rebecca Haskell</i>	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: July 6, 2017 Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - SRO State Com #018H
Eddy County, New Mexico

25 South			27 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

25 South			28 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

25 South			29 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

26 South			27 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

26 South			28 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

26 South			29 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

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	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 01668			ED	3	3	12	26S	28E		589957	3546554*	250	100	150
C 02160			ED	4	1	2	14	26S	28E	589243	3546044*	300	120	180
C 02160 S			ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
C 02160 S2			ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
C 02160 S3			ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
C 02160 S4			ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
C 02160 S5			ED	1	1	1	14	26S	28E	588225	3546237*	300	120	180
C 02160 S6			ED	3	3	1	14	26S	28E	588232	3545635*	300	120	180
C 02160 S7			ED	3	3	1	22	26S	28E	586638	3543998*	300	120	180
C 02160 S8			ED	2	3	3	12	26S	28E	590056	3546653*	200	120	80
C 02160 S9			ED	3	3	2	02	26S	28E	589020	3548868*	300	120	180
C 02477		CUB	ED	1	1	03	26S	28E		586687	3549347*	150		
C 02478		CUB	ED	2	1	05	26S	28E		583848	3549325*	100		
C 02479		CUB	ED	4	4	10	26S	28E		587909	3546534*	200		
C 02480		CUB	ED	4	4	10	26S	28E		587909	3546534*	150		
C 02481		CUB	ED	1	1	14	26S	28E		588326	3546138*	200		
C 02894		C	ED	2	2	3	12	26S	28E	590458	3547061*	240		
C 02924		C	ED	1	3	2	11	26S	28E	589032	3547451*			
C 04022 POD1		CUB	ED	4	4	2	15	26S	28E	588082	3545647	220	175	45
C 04022 POD2		CUB	ED	2	2	2	27	26S	28E	588106	3543082	250	145	105

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Appendix C



Certificate of Analysis Summary 560033

COG Operating LLC, Artesia, NM

Project Name: SRO State Com #018H



Project Id:

Contact: Aaron Lieb

Project Location: SRO State Com #018H

Date Received in Lab: Fri Aug-11-17 11:45 am

Report Date: 22-AUG-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	560033-001	560033-002	560033-003	560033-004	560033-005	560033-006
	Field Id:	T1-Surface	T1-1'	T1-2'	T1-3'	T1-4'	T1-6'
	Depth:		1- ft	2- ft	3- ft	4- ft	6- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-07-17 09:30	Aug-07-17 09:30	Aug-07-17 09:30	Aug-07-17 09:30	Aug-07-17 09:30	Aug-07-17 09:45
BTEX by EPA 8021B	Extracted:	Aug-15-17 11:00	Aug-15-17 11:00	Aug-15-17 11:00	Aug-15-17 11:00	Aug-15-17 11:00	
	Analyzed:	Aug-15-17 23:03	Aug-15-17 23:20	Aug-16-17 00:16	Aug-16-17 00:35	Aug-15-17 20:33	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	0.00531 0.00200	<0.00200 0.00200	<0.00198 0.00198	
m,p-Xylenes		0.00703 0.00398	0.00415 0.00401	0.0391 0.00399	<0.00399 0.00399	<0.00396 0.00396	
o-Xylene		0.00564 0.00199	0.00457 0.00200	0.0298 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Total Xylenes		0.0127 0.00199	0.00872 0.00200	0.0689 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Total BTEX		0.0127 0.00199	0.00872 0.00200	0.0742 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-21-17 11:00	Aug-21-17 11:00	Aug-21-17 11:00	Aug-21-17 11:00	Aug-18-17 17:00	Aug-18-17 17:00
	Analyzed:	Aug-21-17 22:37	Aug-21-17 22:45	Aug-21-17 22:53	Aug-21-17 23:00	Aug-18-17 19:48	Aug-18-17 20:11
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		12800 99.6	11200 99.8	10600 99.4	6850 98.2	6310 98.6	5320 49.9
TPH By SW8015 Mod	Extracted:	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00	
	Analyzed:	Aug-14-17 13:14	Aug-14-17 14:16	Aug-14-17 14:36	Aug-14-17 14:57	Aug-14-17 15:17	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Diesel Range Organics (DRO)		1250 15.0	<15.0 15.0	62.5 15.0	<15.0 15.0	<15.0 15.0	
Oil Range Hydrocarbons (ORO)		474 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Total TPH		1720 15.0	<15.0 15.0	62.5 15.0	<15.0 15.0	<15.0 15.0	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 560033

COG Operating LLC, Artesia, NM

Project Name: SRO State Com #018H



Project Id:

Contact: Aaron Lieb

Project Location: SRO State Com #018H

Date Received in Lab: Fri Aug-11-17 11:45 am

Report Date: 22-AUG-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	560033-007	560033-008	560033-009	560033-010	560033-011	560033-012
	Field Id:	T1-8'	T1-10'	T1-12'	T1-14'	T1-17'	T2-Surface
	Depth:	8- ft	10- ft	12- ft	14- ft	17- ft	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-07-17 09:45	Aug-07-17 09:45	Aug-07-17 09:45	Aug-07-17 10:00	Aug-07-17 10:00	Aug-07-17 10:15
BTEX by EPA 8021B	Extracted:					Aug-15-17 11:00	Aug-15-17 11:00
	Analyzed:					Aug-15-17 20:52	Aug-15-17 21:10
	Units/RL:					mg/kg RL	mg/kg RL
Benzene						<0.00201 0.00201	<0.00200 0.00200
Toluene						<0.00201 0.00201	0.298 0.00200
Ethylbenzene						<0.00201 0.00201	0.289 0.00200
m,p-Xylenes						<0.00402 0.00402	0.253 0.00399
o-Xylene						<0.00201 0.00201	0.202 0.00200
Total Xylenes						<0.00201 0.00201	0.455 0.00200
Total BTEX						<0.00201 0.00201	1.04 0.00200
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00
	Analyzed:	Aug-18-17 20:19	Aug-18-17 20:26	Aug-18-17 20:34	Aug-18-17 20:57	Aug-18-17 21:05	Aug-18-17 21:12
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2650 49.1	1200 24.9	1250 24.6	285 4.99	210 4.92	8150 49.4
TPH By SW8015 Mod	Extracted:					Aug-14-17 11:00	Aug-14-17 11:00
	Analyzed:					Aug-14-17 15:37	Aug-14-17 15:58
	Units/RL:					mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)						<15.0 15.0	175 15.0
Diesel Range Organics (DRO)						<15.0 15.0	622 15.0
Oil Range Hydrocarbons (ORO)						<15.0 15.0	97.9 15.0
Total TPH						<15.0 15.0	895 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 560033

COG Operating LLC, Artesia, NM

Project Name: SRO State Com #018H



Project Id:

Contact: Aaron Lieb

Project Location: SRO State Com #018H

Date Received in Lab: Fri Aug-11-17 11:45 am

Report Date: 22-AUG-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	560033-013	560033-014	560033-015	560033-016	560033-017	560033-018
	Field Id:	T2-1'	T2-2'	T2-3'	T2-4'	T2-6'	T2-8'
	Depth:	1- ft	2- ft	3- ft	4- ft	6- ft	8- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Aug-07-17 10:15	Aug-07-17 10:15	Aug-07-17 10:15	Aug-07-17 10:15	Aug-07-17 10:15	Aug-07-17 10:15
BTEX by EPA 8021B	Extracted:	Aug-15-17 11:00	Aug-15-17 11:00	Aug-15-17 11:00	Aug-15-17 11:00		
	Analyzed:	Aug-15-17 21:29	Aug-15-17 21:48	Aug-15-17 22:07	Aug-15-17 22:26		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
	Benzene	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202		
	Toluene	0.0121 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202		
Ethylbenzene		0.0415 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00202 0.00202		
m,p-Xylenes		0.235 0.00398	0.0121 0.00399	0.00403 0.00402	<0.00404 0.00404		
o-Xylene		0.159 0.00199	0.00565 0.00200	0.00377 0.00201	0.00323 0.00202		
Total Xylenes		0.394 0.00199	0.0178 0.00200	0.00780 0.00201	0.00323 0.00202		
Total BTEX		0.448 0.00199	0.0178 0.00200	0.00780 0.00201	0.00323 0.00202		
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00
	Analyzed:	Aug-18-17 21:20	Aug-18-17 21:28	Aug-18-17 21:36	Aug-18-17 21:59	Aug-18-17 22:06	Aug-18-17 22:29
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Chloride	8450 49.8	9740 99.6	9750 99.4	4370 49.7	1420 24.9	470 24.8
TPH By SW8015 Mod	Extracted:	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00		
	Analyzed:	Aug-14-17 16:18	Aug-14-17 16:38	Aug-14-17 16:59	Aug-14-17 18:01		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
	Gasoline Range Hydrocarbons (GRO)	42.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9		
	Diesel Range Organics (DRO)	227 15.0	32.2 15.0	<15.0 15.0	<14.9 14.9		
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9		
Total TPH		269 15.0	32.2 15.0	<15.0 15.0	<14.9 14.9		

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 560033

COG Operating LLC, Artesia, NM

Project Name: SRO State Com #018H



Project Id:

Contact: Aaron Lieb

Project Location: SRO State Com #018H

Date Received in Lab: Fri Aug-11-17 11:45 am

Report Date: 22-AUG-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	560033-019	560033-020	560033-021	560033-022		
	Field Id:	T2-10'	T2-12'	T2-14'	T2-15'-16'		
	Depth:	10- ft	12- ft	14- ft	15-16 ft		
	Matrix:	SOIL	SOIL	SOIL	SOIL		
	Sampled:	Aug-07-17 10:30	Aug-07-17 10:30	Aug-07-17 10:30	Aug-07-17 10:30		
BTEX by EPA 8021B	Extracted:				Aug-15-17 11:00		
	Analyzed:				Aug-15-17 22:44		
	Units/RL:				mg/kg RL		
Benzene					<0.00200 0.00200		
Toluene					<0.00200 0.00200		
Ethylbenzene					<0.00200 0.00200		
m,p-Xylenes					<0.00401 0.00401		
o-Xylene					<0.00200 0.00200		
Total Xylenes					<0.00200 0.00200		
Total BTEX					<0.00200 0.00200		
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00	Aug-18-17 17:00		
	Analyzed:	Aug-18-17 22:37	Aug-18-17 22:45	Aug-18-17 22:52	Aug-18-17 23:00		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		349 25.0	159 4.94	280 24.6	359 24.7		
TPH By SW8015 Mod	Extracted:				Aug-14-17 11:00		
	Analyzed:				Aug-14-17 18:21		
	Units/RL:				mg/kg RL		
Gasoline Range Hydrocarbons (GRO)					<15.0 15.0		
Diesel Range Organics (DRO)					<15.0 15.0		
Oil Range Hydrocarbons (ORO)					<15.0 15.0		
Total TPH					<15.0 15.0		

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Kelsey Brooks
Project Manager

Analytical Report 560033

**for
COG Operating LLC**

Project Manager: Aaron Lieb

SRO State Com #018H

22-AUG-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)



22-AUG-17

Project Manager: **Aaron Lieb**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **560033**

SRO State Com #018H

Project Address: SRO State Com #018H

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) 560033. 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. 560033 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks

Project Manager

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COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1-Surface	S	08-07-17 09:30		560033-001
T1-1'	S	08-07-17 09:30	1 ft	560033-002
T1-2'	S	08-07-17 09:30	2 ft	560033-003
T1-3'	S	08-07-17 09:30	3 ft	560033-004
T1-4'	S	08-07-17 09:30	4 ft	560033-005
T1-6'	S	08-07-17 09:45	6 ft	560033-006
T1-8'	S	08-07-17 09:45	8 ft	560033-007
T1-10'	S	08-07-17 09:45	10 ft	560033-008
T1-12'	S	08-07-17 09:45	12 ft	560033-009
T1-14'	S	08-07-17 10:00	14 ft	560033-010
T1-17'	S	08-07-17 10:00	17 ft	560033-011
T2-Surface	S	08-07-17 10:15		560033-012
T2-1'	S	08-07-17 10:15	1 ft	560033-013
T2-2'	S	08-07-17 10:15	2 ft	560033-014
T2-3'	S	08-07-17 10:15	3 ft	560033-015
T2-4'	S	08-07-17 10:15	4 ft	560033-016
T2-6'	S	08-07-17 10:15	6 ft	560033-017
T2-8'	S	08-07-17 10:15	8 ft	560033-018
T2-10'	S	08-07-17 10:30	10 ft	560033-019
T2-12'	S	08-07-17 10:30	12 ft	560033-020
T2-14'	S	08-07-17 10:30	14 ft	560033-021
T2-15'-16'	S	08-07-17 10:30	15 - 16 ft	560033-022



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: SRO State Com #018H

Project ID:

Work Order Number(s): 560033

Report Date: 22-AUG-17

Date Received: 08/11/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3025050 TPH By SW8015 Mod

Lab Sample ID 560033-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Diesel Range Organics (DRO) recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 560033-001, -002, -003, -004, -005, -011, -012, -013, -014, -015, -016, -022.

The Laboratory Control Sample for Diesel Range Organics (DRO) is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3025341 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **T1-Surface**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560033-001

Date Collected: 08.07.17 09.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MNV

% Moisture:

Analyst: MGO

Date Prep: 08.21.17 11.00

Basis: Wet Weight

Seq Number: 3025634

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12800	99.6	mg/kg	08.21.17 22.37		20

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.14.17 11.00

Basis: Wet Weight

Seq Number: 3025050

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 13.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	1250	15.0	mg/kg	08.14.17 13.14		1
Oil Range Hydrocarbons (ORO)	PHCG2835	474	15.0	mg/kg	08.14.17 13.14		1
Total TPH	PHC635	1720	15.0	mg/kg	08.14.17 13.14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	08.14.17 13.14	
o-Terphenyl	84-15-1	126	%	70-135	08.14.17 13.14	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **T1-Surface**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560033-001

Date Collected: 08.07.17 09.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.15.17 23.03	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.15.17 23.03	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.15.17 23.03	U	1
m,p-Xylenes	179601-23-1	0.00703	0.00398	mg/kg	08.15.17 23.03		1
o-Xylene	95-47-6	0.00564	0.00199	mg/kg	08.15.17 23.03		1
Total Xylenes	1330-20-7	0.0127	0.00199	mg/kg	08.15.17 23.03		1
Total BTEX		0.0127	0.00199	mg/kg	08.15.17 23.03		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	82		%	80-120	08.15.17 23.03	
1,4-Difluorobenzene	540-36-3	90		%	80-120	08.15.17 23.03	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-1'
Lab Sample Id: 560033-002

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MNV

Analyst: MGO

Seq Number: 3025634

Date Prep: 08.21.17 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11200	99.8	mg/kg	08.21.17 22.45		20

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 14.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 14.16	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 14.16	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 14.16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	08.14.17 14.16	
o-Terphenyl	84-15-1	97	%	70-135	08.14.17 14.16	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-1'
Lab Sample Id: 560033-002

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.15.17 23.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.15.17 23.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.15.17 23.20	U	1
m,p-Xylenes	179601-23-1	0.00415	0.00401	mg/kg	08.15.17 23.20		1
o-Xylene	95-47-6	0.00457	0.00200	mg/kg	08.15.17 23.20		1
Total Xylenes	1330-20-7	0.00872	0.00200	mg/kg	08.15.17 23.20		1
Total BTEX		0.00872	0.00200	mg/kg	08.15.17 23.20		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	94		%	80-120	08.15.17 23.20	
4-Bromofluorobenzene	460-00-4	92		%	80-120	08.15.17 23.20	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-2'
Lab Sample Id: 560033-003

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MNV

Analyst: MGO

Seq Number: 3025634

Date Prep: 08.21.17 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10600	99.4	mg/kg	08.21.17 22.53		20

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 14.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	62.5	15.0	mg/kg	08.14.17 14.36		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 14.36	U	1
Total TPH	PHC635	62.5	15.0	mg/kg	08.14.17 14.36		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	08.14.17 14.36	
o-Terphenyl	84-15-1	96	%	70-135	08.14.17 14.36	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-2'
Lab Sample Id: 560033-003

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.16.17 00.16	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.16.17 00.16	U	1
Ethylbenzene	100-41-4	0.00531	0.00200	mg/kg	08.16.17 00.16		1
m,p-Xylenes	179601-23-1	0.0391	0.00399	mg/kg	08.16.17 00.16		1
o-Xylene	95-47-6	0.0298	0.00200	mg/kg	08.16.17 00.16		1
Total Xylenes	1330-20-7	0.0689	0.00200	mg/kg	08.16.17 00.16		1
Total BTEX		0.0742	0.00200	mg/kg	08.16.17 00.16		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	08.16.17 00.16		
1,4-Difluorobenzene	540-36-3	94	%	80-120	08.16.17 00.16		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-3'
Lab Sample Id: 560033-004

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MNV

Analyst: MGO

Seq Number: 3025634

Date Prep: 08.21.17 11.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6850	98.2	mg/kg	08.21.17 23.00		20

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 14.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 14.57	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 14.57	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 14.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	97	%	70-135	08.14.17 14.57		
o-Terphenyl	84-15-1	95	%	70-135	08.14.17 14.57		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-3'
Lab Sample Id: 560033-004

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.16.17 00.35	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.16.17 00.35	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.16.17 00.35	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.16.17 00.35	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.16.17 00.35	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.16.17 00.35	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.16.17 00.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	92	%	80-120	08.16.17 00.35		
4-Bromofluorobenzene	460-00-4	99	%	80-120	08.16.17 00.35		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-4'
Lab Sample Id: 560033-005

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025521

Date Prep: 08.18.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6310	98.6	mg/kg	08.18.17 19.48		20

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 15.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 15.17	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 15.17	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 15.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	100	%	70-135	08.14.17 15.17		
o-Terphenyl	84-15-1	97	%	70-135	08.14.17 15.17		

COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-4'
Lab Sample Id: 560033-005

Matrix: Soil
Date Collected: 08.07.17 09.30

Date Received: 08.11.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3025341

Prep Method: SW5030B

% Moisture:

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.15.17 20.33	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.15.17 20.33	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	08.15.17 20.33	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	08.15.17 20.33	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.15.17 20.33	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.15.17 20.33	U	1
Total BTEX		<0.00198	0.00198	mg/kg	08.15.17 20.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	111	%	80-120	08.15.17 20.33		
1,4-Difluorobenzene	540-36-3	95	%	80-120	08.15.17 20.33		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM SRO State Com #018H

Sample Id: T1-6' Matrix: Soil Date Received: 08.11.17 11.45
Lab Sample Id: 560033-006 Date Collected: 08.07.17 09.45 Sample Depth: 6 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 08.18.17 17.00 Basis: Wet Weight
Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5320	49.9	mg/kg	08.18.17 20.11		10



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-8'
Lab Sample Id: 560033-007

Matrix: Soil
Date Collected: 08.07.17 09.45

Date Received: 08.11.17 11.45
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2650	49.1	mg/kg	08.18.17 20.19		10



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **T1-10'**
Lab Sample Id: 560033-008

Matrix: Soil
Date Collected: 08.07.17 09.45

Date Received: 08.11.17 11.45
Sample Depth: 10 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1200	24.9	mg/kg	08.18.17 20.26		5



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-12'
Lab Sample Id: 560033-009

Matrix: Soil
Date Collected: 08.07.17 09.45

Date Received: 08.11.17 11.45
Sample Depth: 12 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1250	24.6	mg/kg	08.18.17 20.34		5



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-14'
Lab Sample Id: 560033-010

Matrix: Soil
Date Collected: 08.07.17 10.00

Date Received: 08.11.17 11.45
Sample Depth: 14 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	285	4.99	mg/kg	08.18.17 20.57		1



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-17'
Lab Sample Id: 560033-011

Matrix: Soil
Date Collected: 08.07.17 10.00

Date Received: 08.11.17 11.45
Sample Depth: 17 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025521

Date Prep: 08.18.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	210	4.92	mg/kg	08.18.17 21.05		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 15.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 15.37	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 15.37	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 15.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	100	%	70-135	08.14.17 15.37		
o-Terphenyl	84-15-1	96	%	70-135	08.14.17 15.37		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T1-17'
Lab Sample Id: 560033-011

Matrix: Soil
Date Collected: 08.07.17 10.00

Date Received: 08.11.17 11.45
Sample Depth: 17 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.15.17 20.52	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.15.17 20.52	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.15.17 20.52	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.15.17 20.52	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.15.17 20.52	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.15.17 20.52	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.15.17 20.52	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	87		%	80-120	08.15.17 20.52	
1,4-Difluorobenzene	540-36-3	94		%	80-120	08.15.17 20.52	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **T2-Surface**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560033-012

Date Collected: 08.07.17 10.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8150	49.4	mg/kg	08.18.17 21.12		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.14.17 11.00

Basis: Wet Weight

Seq Number: 3025050

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	175	15.0	mg/kg	08.14.17 15.58		1
Diesel Range Organics (DRO)	C10C28DRO	622	15.0	mg/kg	08.14.17 15.58		1
Oil Range Hydrocarbons (ORO)	PHCG2835	97.9	15.0	mg/kg	08.14.17 15.58		1
Total TPH	PHC635	895	15.0	mg/kg	08.14.17 15.58		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	08.14.17 15.58		
o-Terphenyl	84-15-1	110	%	70-135	08.14.17 15.58		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **T2-Surface**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560033-012

Date Collected: 08.07.17 10.15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.15.17 21.10	U	1
Toluene	108-88-3	0.298	0.00200	mg/kg	08.15.17 21.10		1
Ethylbenzene	100-41-4	0.289	0.00200	mg/kg	08.15.17 21.10		1
m,p-Xylenes	179601-23-1	0.253	0.00399	mg/kg	08.15.17 21.10		1
o-Xylene	95-47-6	0.202	0.00200	mg/kg	08.15.17 21.10		1
Total Xylenes	1330-20-7	0.455	0.00200	mg/kg	08.15.17 21.10		1
Total BTEX		1.04	0.00200	mg/kg	08.15.17 21.10		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	80-120	08.15.17 21.10		
1,4-Difluorobenzene	540-36-3	94	%	80-120	08.15.17 21.10		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-1'
Lab Sample Id: 560033-013

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025521

Date Prep: 08.18.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8450	49.8	mg/kg	08.18.17 21.20		10

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	42.0	15.0	mg/kg	08.14.17 16.18		1
Diesel Range Organics (DRO)	C10C28DRO	227	15.0	mg/kg	08.14.17 16.18		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 16.18	U	1
Total TPH	PHC635	269	15.0	mg/kg	08.14.17 16.18		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	98	%	70-135	08.14.17 16.18		
o-Terphenyl	84-15-1	104	%	70-135	08.14.17 16.18		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-1'
Lab Sample Id: 560033-013

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.15.17 21.29	U	1
Toluene	108-88-3	0.0121	0.00199	mg/kg	08.15.17 21.29		1
Ethylbenzene	100-41-4	0.0415	0.00199	mg/kg	08.15.17 21.29		1
m,p-Xylenes	179601-23-1	0.235	0.00398	mg/kg	08.15.17 21.29		1
o-Xylene	95-47-6	0.159	0.00199	mg/kg	08.15.17 21.29		1
Total Xylenes	1330-20-7	0.394	0.00199	mg/kg	08.15.17 21.29		1
Total BTEX		0.448	0.00199	mg/kg	08.15.17 21.29		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	86	%	80-120	08.15.17 21.29		
4-Bromofluorobenzene	460-00-4	115	%	80-120	08.15.17 21.29		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-2'
Lab Sample Id: 560033-014

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025521

Date Prep: 08.18.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9740	99.6	mg/kg	08.18.17 21.28		20

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 16.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	32.2	15.0	mg/kg	08.14.17 16.38		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 16.38	U	1
Total TPH	PHC635	32.2	15.0	mg/kg	08.14.17 16.38		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	08.14.17 16.38	
o-Terphenyl	84-15-1	96	%	70-135	08.14.17 16.38	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-2'
Lab Sample Id: 560033-014

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.15.17 21.48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.15.17 21.48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.15.17 21.48	U	1
m,p-Xylenes	179601-23-1	0.0121	0.00399	mg/kg	08.15.17 21.48		1
o-Xylene	95-47-6	0.00565	0.00200	mg/kg	08.15.17 21.48		1
Total Xylenes	1330-20-7	0.0178	0.00200	mg/kg	08.15.17 21.48		1
Total BTEX		0.0178	0.00200	mg/kg	08.15.17 21.48		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	90		%	80-120	08.15.17 21.48	
4-Bromofluorobenzene	460-00-4	92		%	80-120	08.15.17 21.48	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-3'
Lab Sample Id: 560033-015

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025521

Date Prep: 08.18.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9750	99.4	mg/kg	08.18.17 21.36		20

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 16.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 16.59	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 16.59	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 16.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	08.14.17 16.59	
o-Terphenyl	84-15-1	95	%	70-135	08.14.17 16.59	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-3'
Lab Sample Id: 560033-015

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.15.17 22.07	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.15.17 22.07	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.15.17 22.07	U	1
m,p-Xylenes	179601-23-1	0.00403	0.00402	mg/kg	08.15.17 22.07		1
o-Xylene	95-47-6	0.00377	0.00201	mg/kg	08.15.17 22.07		1
Total Xylenes	1330-20-7	0.00780	0.00201	mg/kg	08.15.17 22.07		1
Total BTEX		0.00780	0.00201	mg/kg	08.15.17 22.07		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	80-120	08.15.17 22.07		
1,4-Difluorobenzene	540-36-3	92	%	80-120	08.15.17 22.07		



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-4'
Lab Sample Id: 560033-016

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025521

Date Prep: 08.18.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4370	49.7	mg/kg	08.18.17 21.59		10

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	08.14.17 18.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	08.14.17 18.01	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	08.14.17 18.01	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	08.14.17 18.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	08.14.17 18.01	
o-Terphenyl	84-15-1	95	%	70-135	08.14.17 18.01	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-4'
Lab Sample Id: 560033-016

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	08.15.17 22.26	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	08.15.17 22.26	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	08.15.17 22.26	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	08.15.17 22.26	U	1
o-Xylene	95-47-6	0.00323	0.00202	mg/kg	08.15.17 22.26		1
Total Xylenes	1330-20-7	0.00323	0.00202	mg/kg	08.15.17 22.26		1
Total BTEX		0.00323	0.00202	mg/kg	08.15.17 22.26		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99		%	80-120	08.15.17 22.26	
1,4-Difluorobenzene	540-36-3	94		%	80-120	08.15.17 22.26	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-6'
Lab Sample Id: 560033-017

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1420	24.9	mg/kg	08.18.17 22.06		5



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-8'
Lab Sample Id: 560033-018

Matrix: Soil
Date Collected: 08.07.17 10.15

Date Received: 08.11.17 11.45
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	470	24.8	mg/kg	08.18.17 22.29		5



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **T2-10'**
Lab Sample Id: 560033-019

Matrix: Soil
Date Collected: 08.07.17 10.30

Date Received: 08.11.17 11.45
Sample Depth: 10 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	349	25.0	mg/kg	08.18.17 22.37		5



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-12'
Lab Sample Id: 560033-020

Matrix: Soil
Date Collected: 08.07.17 10.30

Date Received: 08.11.17 11.45
Sample Depth: 12 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	159	4.94	mg/kg	08.18.17 22.45		1



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-14'
Lab Sample Id: 560033-021

Matrix: Soil
Date Collected: 08.07.17 10.30

Date Received: 08.11.17 11.45
Sample Depth: 14 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	280	24.6	mg/kg	08.18.17 22.52		5



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-15'-16'

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560033-022

Date Collected: 08.07.17 10.30

Sample Depth: 15 - 16 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.18.17 17.00

Basis: Wet Weight

Seq Number: 3025521

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	359	24.7	mg/kg	08.18.17 23.00		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.14.17 11.00

Basis: Wet Weight

Seq Number: 3025050

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 18.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 18.21	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 18.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 18.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	08.14.17 18.21	
o-Terphenyl	84-15-1	96	%	70-135	08.14.17 18.21	



Certificate of Analytical Results 560033



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: T2-15'-16'

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560033-022

Date Collected: 08.07.17 10.30

Sample Depth: 15 - 16 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.15.17 11.00

Basis: Wet Weight

Seq Number: 3025341

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.15.17 22.44	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.15.17 22.44	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.15.17 22.44	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	08.15.17 22.44	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.15.17 22.44	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.15.17 22.44	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.15.17 22.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	95	%	80-120	08.15.17 22.44		
4-Bromofluorobenzene	460-00-4	92	%	80-120	08.15.17 22.44		

- 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

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COG Operating LLC
SRO State Com #018H**Analytical Method: Inorganic Anions by EPA 300/300.1**

Seq Number: 3025521

Matrix: Solid

Prep Method: E300P

MB Sample Id: 729641-1-BLK

LCS Sample Id: 729641-1-BKS

Date Prep: 08.18.17

LCSD Sample Id: 729641-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.90	245	253	103	248	100	90-110	2	20	mg/kg	08.18.17 19:33	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025634

Matrix: Solid

Prep Method: E300P

MB Sample Id: 729569-1-BLK

LCS Sample Id: 729569-1-BKS

Date Prep: 08.21.17

LCSD Sample Id: 729569-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.98	249	257	103	252	101	90-110	2	20	mg/kg	08.21.17 19:18	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025521

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 560033-005

MS Sample Id: 560033-005 S

Date Prep: 08.18.17

MSD Sample Id: 560033-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6310	4930	11200	99	11200	99	90-110	0	20	mg/kg	08.18.17 19:56	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025521

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 560033-015

MS Sample Id: 560033-015 S

Date Prep: 08.18.17

MSD Sample Id: 560033-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9750	4970	14700	100	14800	102	90-110	1	20	mg/kg	08.18.17 21:43	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025634

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 560037-001

MS Sample Id: 560037-001 S

Date Prep: 08.21.17

MSD Sample Id: 560037-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.95	248	267	108	265	107	90-110	1	20	mg/kg	08.21.17 19:41	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025634

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 560038-007

MS Sample Id: 560038-007 S

Date Prep: 08.21.17

MSD Sample Id: 560038-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	615	248	811	79	833	88	90-110	3	20	mg/kg	08.21.17 21:28	X



QC Summary 560033

COG Operating LLC SRO State Com #018H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3025050

MB Sample Id: 729376-1-BLK

Matrix: Solid

LCS Sample Id: 729376-1-BKS

Prep Method: TX1005P

Date Prep: 08.14.17

LCSD Sample Id: 729376-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	949	95	988	99	70-135	4	35	mg/kg	08.14.17 12:34	
Diesel Range Organics (DRO)	<15.0	1000	1090	109	1060	106	70-135	3	35	mg/kg	08.14.17 12:34	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	117		117		115		70-135	%	08.14.17 12:34			
o-Terphenyl	122		113		109		70-135	%	08.14.17 12:34			

Analytical Method: TPH By SW8015 Mod

Seq Number: 3025050

Parent Sample Id: 560033-001

Matrix: Soil

MS Sample Id: 560033-001 S

Prep Method: TX1005P

Date Prep: 08.14.17

MSD Sample Id: 560033-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	999	845	85	921	92	70-135	9	35	mg/kg	08.14.17 13:35	
Diesel Range Organics (DRO)	1250	999	1150	0	1230	0	70-135	7	35	mg/kg	08.14.17 13:35	X
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			103		110		70-135	%	08.14.17 13:35			
o-Terphenyl			119		124		70-135	%	08.14.17 13:35			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3025341

MB Sample Id: 729488-1-BLK

Matrix: Solid

LCS Sample Id: 729488-1-BKS

Prep Method: SW5030B

Date Prep: 08.15.17

LCSD Sample Id: 729488-1-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	0.0998	0.117	117	0.111	112	70-130	5	35	mg/kg	08.15.17 18:40	
Toluene	<0.00200	0.0998	0.117	117	0.110	111	70-130	6	35	mg/kg	08.15.17 18:40	
Ethylbenzene	<0.00200	0.0998	0.120	120	0.110	111	71-129	9	35	mg/kg	08.15.17 18:40	
m,p-Xylenes	<0.00399	0.200	0.234	117	0.214	108	70-135	9	35	mg/kg	08.15.17 18:40	
o-Xylene	<0.00200	0.0998	0.115	115	0.105	106	71-133	9	35	mg/kg	08.15.17 18:40	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	101		95		98		80-120	%	08.15.17 18:40			
4-Bromofluorobenzene	81		95		91		80-120	%	08.15.17 18:40			



QC Summary 560033

COG Operating LLC SRO State Com #018H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3025341

Parent Sample Id: 560033-005

Matrix: Soil

MS Sample Id: 560033-005 S

Prep Method: SW5030B

Date Prep: 08.15.17

MSD Sample Id: 560033-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0877	88	0.0839	83	70-130	4	35	mg/kg	08.15.17 19:18	
Toluene	<0.00201	0.100	0.0871	87	0.0827	82	70-130	5	35	mg/kg	08.15.17 19:18	
Ethylbenzene	<0.00201	0.100	0.0860	86	0.0824	82	71-129	4	35	mg/kg	08.15.17 19:18	
m,p-Xylenes	<0.00402	0.201	0.168	84	0.161	80	70-135	4	35	mg/kg	08.15.17 19:18	
o-Xylene	<0.00201	0.100	0.0833	83	0.0804	80	71-133	4	35	mg/kg	08.15.17 19:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	90		98		80-120	%	08.15.17 19:18
4-Bromofluorobenzene	115		120		80-120	%	08.15.17 19:18

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560030

Matrix Codes

Client / Reporting Information

Company Name / Branch:
COG Operating LLC

Company Address:
2407 PECOS Avenue Artesia NM 88210

Email:
alieb@concho.com dneel2@concho.com thaskel@concho.com

Project Contact: Aaron Lieb

Samplers Name: Aaron Lieb

Project Information

Project Name/Number:
SRO State Com #018H

Project Location:
SRO State Com #01

Invoice To: COG Operating LLC
Attn: Robert McNeill
600 W. Illinois
Midland TX 79701

PO Number:

Analytical Information

Matrix Codes

W = Water
S = Soil/SedSolid
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

Sample Depth

Date

Time

Matrix

of bottles

HCl

NaOH/Zn Acetate

HNO3

H2SO4

NaOH

NaHSO4

MEOH

NONE

TPH/ EXTENDED

BTEX

Chloride

Field Comments

1

TI- Surface

1

8-7-17

9:30am

S

1

2

TI- 1'

2

3

TI- 2'

3

4

TI- 3'

4

5

TI- 4'

5

6

TI- 6'

6

7

TI- 8'

7

8

TI- 10'

8

9

TI- 12'

9

10

10

Turnaround Time (Business days)

Notes:

Same Day TAT

5 Day TAT

Level II Std QC

Level IV (Full Data Pkg /raw data)

Next Day EMERGENCY

7 Day TAT

Level III Std QC+ Forms

TRRP Level IV

2 Day EMERGENCY

Contract TAT

Level 3 (CLP Forms)

UST / RG -411

3 Day EMERGENCY

TRRP Checklist

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

FED-EX / UPS: Tracking #

Relinquished by: Sample

Relinquished by: Aliceio Montoya A.

Date Time: 8-1-17

Date Time: 8-1-17

Received By: 1

Received By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Relinquished By: 3

Relinquished By: 4

Date Time: 8-1-17

Date Time: 8-1-17

Received By: 4

Received By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Relinquished By: 4

Relinquished By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Received By: 4

Received By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Relinquished By: 4

Relinquished By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Received By: 4

Received By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Relinquished By: 4

Relinquished By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Received By: 4

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Date Time: 8-1-17

Date Time: 8-1-17

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Date Time: 8-1-17

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Received By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Relinquished By: 4

Relinquished By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Received By: 4

Received By: 2

Date Time: 8-1-17

Date Time: 8-1-17

Relinquished By:

Notice: Signature on this document and reimbursement 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 not be responsible for any losses or expenses incurred by the Client if such losses 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 sample terms will be enforced unless previously negotiated under a fully executed client contract.

Temp: 3.8
CF: (0.6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.6
IR ID: R-8



Setting the Standard since 1990
Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)

CHAIN OF CUSTODY

Page 2 of 3

San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

www.xenco.com

Client / Reporting Information		Project Information										Xenco Quote #		Xenco Job #				
Company Name / Branch:		Project Name/Number:										Analytical Information		Matrix Codes				
COG Operating LLC		SRO State Com #018H																
Company Address:		Project Location:																
2407 PECOS Avenue Artesia NM 88210		SRO State Com #0																
Email:		Invoice To:																
aileen@concho.com direct@concho.com thaskell@concho.com		COG Operating LLC Attn: Robert McNeill 600 W. Illinois Midland TX 79701																
Project Contact: Aaron Lieb		PO Number:																
Samplers Name- Aaron Lieb																		
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments
1	T1-14'	14	8-11-17	10:00 AM	S	1									X	X	X	
2	T1-17'	17				1									X	X	X	
3																		
4	T2-Surf Ace			10:55 AM		1									X	X	X	
5	T2-1'					1									X	X	X	
6	T2-2'					1									X	X	X	
7	T2-3'					1									X	X	X	
8	T2-4'					1									X	X	X	
9	T2-6'					1									X	X	X	
10	T2-8'					1									X	X	X	
Turnaround Time (Business days)		Data Deliverable Information										Notes:						
☐ Same Day TAT		☐ Level II Std QC										☐ Level IV (Full Data Pkg /raw data)						
☐ Next Day EMERGENCY		☐ Level III Std QC+ Forms										☐ TRRP Level IV						
☐ 2 Day EMERGENCY		☐ Contract TAT										☐ Level 3 (CLP Forms)		☐ UST / RG-411				
☐ 3 Day EMERGENCY		☐ TRRP Checklist																
TAT Starts Day received by Lab, if received by 5:00 pm												FED-EX / UPS: Tracking #						
Relinquished by Sampler:		SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																
1		Date Time:	8-11-17	Received By:	10:00 AM	Relinquished By:	8-11-17	Received By:	2:00 PM	Relinquished By:	8-11-17	Received By:	11:45 AM	Recr	1			
Relinquished by:		Date Time:	8-12-17 14:20	Received By:	3	Relinquished By:	4	Custody Seal #	4	Preserved where applicable								
3		Date Time:	8-12-17 14:20	Received By:	3	Relinquished By:	4	Custody Seal #	4	Preserved where applicable								
Relinquished by:		Date Time:	8-12-17 14:20	Received By:	3	Relinquished By:	4	Custody Seal #	4	Preserved where applicable								
5		Date Time:	8-12-17 14:20	Received By:	3	Relinquished By:	4	Custody Seal #	4	Preserved where applicable								

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 b any losses or expenses incurred by the Client if such losses 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 sampli terms will be enforced unless previously negotiated under a fully executed client contract.

Temp: 3.0
CF: (0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.6
IR ID: R-8



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Dallas Texas (214-902-0300)

CHAIN OF CUSTODY

Page 3 of 3

San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

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Xenco Quote #

Xenco Job #

560033

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: COG Operating LLC				Project Name/Number: SRO State Com #018H														
Company Address: 2407 PECOS Avenue Arlisia NM 88210				Project Location: SRO State Com #0														
Email: aaleb@concho.com dnel2@concho.com rshakell@concho.com				Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Midland TX 79701														
Project Contact: Aaron Lieb				PO Number:														
Sampler's Name: Aaron Lieb																		
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments
1	T2-10'	10'	8-17	10:30 AM	S	1												
2	T2-12'	12'				1												
3	T2-14'	14'				1												
4	T2-15'-6"	15'-6"				1												
5																		
6																		
7																		
8																		
9																		
10																		
Turnaround Time (Business days)																		
Data Deliverable Information																		
Notes:																		
Same Day TAT ☐ 5 Day TAT ☐ Level II Std QC ☐ Level IV (Full Data Pkg / raw data) ☐																		
Next Day EMERGENCY ☐ 7 Day TAT ☐ Level III Std QC+ Forms ☐ TRRP Level IV ☐																		
2 Day EMERGENCY ☐ Contract TAT ☐ Level 3 (CLP Forms) ☐ UST / RG -411 ☐																		
3 Day EMERGENCY ☐ TRRP Checklist ☐																		
TAT Starts Day received by Lab, if received by 5:00 pm																		
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																		
FED-EX / UPS: Tracking #																		
Relinquished by Sampler: <i>[Signature]</i> Date Time: 8-11-17 Received By: <i>[Signature]</i> 8-11-17 Relinquished By: <i>[Signature]</i> 8-11-17 Date Time: 8-11-17																		
Relinquished by: <i>[Signature]</i> Date Time: 8-12-17 14:28 Received By: <i>[Signature]</i> 8-12-17 14:28 Relinquished By: <i>[Signature]</i> 8-12-17 14:28 Date Time: 8-12-17 14:28																		
Relinquished by: <i>[Signature]</i> Date Time: 8-12-17 14:28 Received By: <i>[Signature]</i> 8-12-17 14:28 Relinquished By: <i>[Signature]</i> 8-12-17 14:28 Date Time: 8-12-17 14:28																		
Custody Seal # Preserved where applicable																		

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 terms will be enforced unless previously negotiated under a fully executed client contract.

Temp: 3.8
CF: (0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.6
IR ID: R-8



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 08/11/2017 11:45:00 AM

Work Order #: 560033

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)?	3.6
#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
Jessica Kramer

Date: 08/14/2017

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks

Date: 08/14/2017



Certificate of Analysis Summary 560034

COG Operating LLC, Artesia, NM

Project Name: SRO State Com #018H



Project Id:

Contact: Aaron Lieb

Project Location: SRO State Com #018H

Date Received in Lab: Fri Aug-11-17 11:45 am

Report Date: 22-AUG-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	560034-001	560034-002	560034-003	560034-004	560034-005	560034-006
	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:	Aug-07-17 11:30	Aug-07-17 11:30	Aug-07-17 11:30	Aug-07-17 11:30	Aug-07-17 11:30	Aug-07-17 11:30
BTEX by EPA 8021B	Extracted:	Aug-18-17 16:40	Aug-18-17 16:40	Aug-18-17 16:40	Aug-18-17 16:40	Aug-18-17 16:40	Aug-18-17 16:40
	Analyzed:	Aug-18-17 23:02	Aug-18-17 22:43	Aug-18-17 23:21	Aug-18-17 23:39	Aug-18-17 23:58	Aug-19-17 00:17
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		0.0167 0.00202	0.0185 0.00200	0.00409 0.00200	0.0112 0.00199	<0.00201 0.00201	0.00269 0.00199
Toluene		0.00324 0.00202	0.0298 0.00200	<0.00200 0.00200	0.0210 0.00199	<0.00201 0.00201	0.00558 0.00199
Ethylbenzene		<0.00202 0.00202	0.00460 0.00200	<0.00200 0.00200	0.00284 0.00199	<0.00201 0.00201	<0.00199 0.00199
m,p-Xylenes		0.00707 0.00404	0.0107 0.00401	<0.00399 0.00399	0.00736 0.00398	<0.00402 0.00402	<0.00398 0.00398
o-Xylene		0.00374 0.00202	0.00380 0.00200	0.00251 0.00200	0.00459 0.00199	0.00254 0.00201	<0.00199 0.00199
Total Xylenes		0.0108 0.00202	0.0145 0.00200	0.00251 0.00200	0.0120 0.00199	0.00254 0.00201	<0.00199 0.00199
Total BTEX		0.0308 0.00202	0.0674 0.00200	0.00660 0.00200	0.0470 0.00199	0.00254 0.00201	0.00827 0.00199
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-21-17 17:00	Aug-21-17 17:00	Aug-21-17 17:00	Aug-21-17 17:00	Aug-21-17 17:00	Aug-21-17 17:00
	Analyzed:	Aug-21-17 23:46	Aug-22-17 00:09	Aug-22-17 00:17	Aug-22-17 00:25	Aug-22-17 00:32	Aug-22-17 00:55
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		9.36 4.98	27.0 4.94	<5.00 5.00	17.0 4.95	<4.94 4.94	<4.97 4.97
TPH By SW8015 Mod	Extracted:	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00	Aug-14-17 11:00
	Analyzed:	Aug-14-17 18:41	Aug-14-17 19:01	Aug-14-17 19:21	Aug-14-17 19:40	Aug-14-17 20:00	Aug-14-17 20:20
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Oil Range Hydrocarbons (ORO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 560034

COG Operating LLC, Artesia, NM

Project Name: SRO State Com #018H



Project Id:

Contact: Aaron Lieb

Project Location: SRO State Com #018H

Date Received in Lab: Fri Aug-11-17 11:45 am

Report Date: 22-AUG-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	560034-007	560034-008				
	Field Id:	West- Surf	West- 1'				
	Depth:		1- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Aug-07-17 11:30	Aug-07-17 11:30				
BTEX by EPA 8021B	Extracted:	Aug-21-17 09:40	Aug-18-17 16:40				
	Analyzed:	Aug-21-17 15:53	Aug-19-17 00:53				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00337 0.00337	0.00864 0.00202				
Toluene		<0.00337 0.00337	0.0132 0.00202				
Ethylbenzene		<0.00337 0.00337	<0.00202 0.00202				
m,p-Xylenes		<0.00673 0.00673	0.00450 0.00403				
o-Xylene		<0.00337 0.00337	0.00421 0.00202				
Total Xylenes		<0.00337 0.00337	0.00871 0.00202				
Total BTEX		<0.00337 0.00337	0.0306 0.00202				
Inorganic Anions by EPA 300/300.1	Extracted:	Aug-21-17 17:00	Aug-21-17 17:00				
	Analyzed:	Aug-22-17 01:03	Aug-22-17 01:11				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		<4.95 4.95	<4.94 4.94				
TPH By SW8015 Mod	Extracted:	Aug-14-17 11:00	Aug-14-17 11:00				
	Analyzed:	Aug-14-17 20:40	Aug-14-17 21:00				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0				
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0				
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0				
Total TPH		<15.0 15.0	<15.0 15.0				

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Kelsey Brooks
Project Manager

Analytical Report 560034

for
COG Operating LLC

Project Manager: Aaron Lieb

SRO State Com #018H

22-AUG-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)



22-AUG-17

Project Manager: **Aaron Lieb**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **560034**

SRO State Com #018H

Project Address: SRO State Com #018H

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) 560034. 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. 560034 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North- Surf	S	08-07-17 11:30		560034-001
North- 1'	S	08-07-17 11:30	1 ft	560034-002
South- Surf	S	08-07-17 11:30		560034-003
South- 1'	S	08-07-17 11:30	1 ft	560034-004
East-Surf	S	08-07-17 11:30		560034-005
East- 1'	S	08-07-17 11:30	1 ft	560034-006
West- Surf	S	08-07-17 11:30		560034-007
West- 1'	S	08-07-17 11:30	1 ft	560034-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: SRO State Com #018H

Project ID:

Work Order Number(s): 560034

Report Date: 22-AUG-17

Date Received: 08/11/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3025509 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Lab Sample ID 560034-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 560034-001, -002, -003, -004, -005, -006, -008.

The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3025537 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **North- Surf**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560034-001

Date Collected: 08.07.17 11.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.21.17 17.00

Basis: Wet Weight

Seq Number: 3025638

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.36	4.98	mg/kg	08.21.17 23.46		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.14.17 11.00

Basis: Wet Weight

Seq Number: 3025050

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	08.14.17 18.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	08.14.17 18.41	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	08.14.17 18.41	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	08.14.17 18.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	08.14.17 18.41	
o-Terphenyl	84-15-1	94	%	70-135	08.14.17 18.41	



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **North- Surf**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560034-001

Date Collected: 08.07.17 11.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.18.17 16.40

Basis: Wet Weight

Seq Number: 3025509

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0167	0.00202	mg/kg	08.18.17 23.02		1
Toluene	108-88-3	0.00324	0.00202	mg/kg	08.18.17 23.02		1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	08.18.17 23.02	U	1
m,p-Xylenes	179601-23-1	0.00707	0.00404	mg/kg	08.18.17 23.02		1
o-Xylene	95-47-6	0.00374	0.00202	mg/kg	08.18.17 23.02		1
Total Xylenes	1330-20-7	0.0108	0.00202	mg/kg	08.18.17 23.02		1
Total BTEX		0.0308	0.00202	mg/kg	08.18.17 23.02		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	93	%	80-120	08.18.17 23.02		
4-Bromofluorobenzene	460-00-4	85	%	80-120	08.18.17 23.02		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **North- 1'**
Lab Sample Id: 560034-002

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025638

Date Prep: 08.21.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	27.0	4.94	mg/kg	08.22.17 00.09		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 19.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 19.01	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 19.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 19.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	08.14.17 19.01	
o-Terphenyl	84-15-1	93	%	70-135	08.14.17 19.01	



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **North- 1'**
Lab Sample Id: 560034-002

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.18.17 16.40

Basis: Wet Weight

Seq Number: 3025509

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0185	0.00200	mg/kg	08.18.17 22.43		1
Toluene	108-88-3	0.0298	0.00200	mg/kg	08.18.17 22.43		1
Ethylbenzene	100-41-4	0.00460	0.00200	mg/kg	08.18.17 22.43		1
m,p-Xylenes	179601-23-1	0.0107	0.00401	mg/kg	08.18.17 22.43		1
o-Xylene	95-47-6	0.00380	0.00200	mg/kg	08.18.17 22.43		1
Total Xylenes	1330-20-7	0.0145	0.00200	mg/kg	08.18.17 22.43		1
Total BTEX		0.0674	0.00200	mg/kg	08.18.17 22.43		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	86	%	80-120	08.18.17 22.43		
4-Bromofluorobenzene	460-00-4	82	%	80-120	08.18.17 22.43		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **South- Surf**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560034-003

Date Collected: 08.07.17 11.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.21.17 17.00

Basis: Wet Weight

Seq Number: 3025638

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	08.22.17 00.17	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.14.17 11.00

Basis: Wet Weight

Seq Number: 3025050

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 19.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 19.21	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 19.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 19.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	08.14.17 19.21	
o-Terphenyl	84-15-1	96	%	70-135	08.14.17 19.21	



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **South- Surf**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560034-003

Date Collected: 08.07.17 11.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.18.17 16.40

Basis: Wet Weight

Seq Number: 3025509

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00409	0.00200	mg/kg	08.18.17 23.21		1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.18.17 23.21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.18.17 23.21	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.18.17 23.21	U	1
o-Xylene	95-47-6	0.00251	0.00200	mg/kg	08.18.17 23.21		1
Total Xylenes	1330-20-7	0.00251	0.00200	mg/kg	08.18.17 23.21		1
Total BTEX		0.00660	0.00200	mg/kg	08.18.17 23.21		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	81	%	80-120	08.18.17 23.21		
1,4-Difluorobenzene	540-36-3	108	%	80-120	08.18.17 23.21		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **South- 1'**
Lab Sample Id: 560034-004

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025638

Date Prep: 08.21.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.0	4.95	mg/kg	08.22.17 00.25		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 19.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 19.40	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 19.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 19.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	08.14.17 19.40	
o-Terphenyl	84-15-1	97	%	70-135	08.14.17 19.40	



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **South- 1'**
Lab Sample Id: 560034-004

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3025509

Date Prep: 08.18.17 16.40

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0112	0.00199	mg/kg	08.18.17 23.39		1
Toluene	108-88-3	0.0210	0.00199	mg/kg	08.18.17 23.39		1
Ethylbenzene	100-41-4	0.00284	0.00199	mg/kg	08.18.17 23.39		1
m,p-Xylenes	179601-23-1	0.00736	0.00398	mg/kg	08.18.17 23.39		1
o-Xylene	95-47-6	0.00459	0.00199	mg/kg	08.18.17 23.39		1
Total Xylenes	1330-20-7	0.0120	0.00199	mg/kg	08.18.17 23.39		1
Total BTEX		0.0470	0.00199	mg/kg	08.18.17 23.39		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	80-120	08.18.17 23.39		
4-Bromofluorobenzene	460-00-4	82	%	80-120	08.18.17 23.39		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **East-Surf**
Lab Sample Id: 560034-005

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025638

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 08.21.17 17.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.94	4.94	mg/kg	08.22.17 00.32	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 08.14.17 11.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 20.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 20.00	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 20.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 20.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	08.14.17 20.00		
o-Terphenyl	84-15-1	97	%	70-135	08.14.17 20.00		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **East-Surf**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560034-005

Date Collected: 08.07.17 11.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.18.17 16.40

Basis: Wet Weight

Seq Number: 3025509

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.18.17 23.58	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.18.17 23.58	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.18.17 23.58	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.18.17 23.58	U	1
o-Xylene	95-47-6	0.00254	0.00201	mg/kg	08.18.17 23.58		1
Total Xylenes	1330-20-7	0.00254	0.00201	mg/kg	08.18.17 23.58		1
Total BTEX		0.00254	0.00201	mg/kg	08.18.17 23.58		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	85	%	80-120	08.18.17 23.58		
1,4-Difluorobenzene	540-36-3	104	%	80-120	08.18.17 23.58		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **East- 1'**
Lab Sample Id: 560034-006

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025638

Date Prep: 08.21.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	08.22.17 00.55	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 20.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 20.20	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 20.20	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 20.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	08.14.17 20.20	
o-Terphenyl	84-15-1	95	%	70-135	08.14.17 20.20	



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **East- 1'**
Lab Sample Id: 560034-006

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.18.17 16.40

Basis: Wet Weight

Seq Number: 3025509

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00269	0.00199	mg/kg	08.19.17 00.17		1
Toluene	108-88-3	0.00558	0.00199	mg/kg	08.19.17 00.17		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.19.17 00.17	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.19.17 00.17	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.19.17 00.17	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.19.17 00.17	U	1
Total BTEX		0.00827	0.00199	mg/kg	08.19.17 00.17		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	80-120	08.19.17 00.17		
4-Bromofluorobenzene	460-00-4	83	%	80-120	08.19.17 00.17		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **West- Surf**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560034-007

Date Collected: 08.07.17 11.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 08.21.17 17.00

Basis: Wet Weight

Seq Number: 3025638

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	08.22.17 01.03	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 08.14.17 11.00

Basis: Wet Weight

Seq Number: 3025050

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 20.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 20.40	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 20.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 20.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	08.14.17 20.40	
o-Terphenyl	84-15-1	103	%	70-135	08.14.17 20.40	



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **West- Surf**

Matrix: Soil

Date Received: 08.11.17 11.45

Lab Sample Id: 560034-007

Date Collected: 08.07.17 11.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.21.17 09.40

Basis: Wet Weight

Seq Number: 3025537

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00337	0.00337	mg/kg	08.21.17 15.53	U	1
Toluene	108-88-3	<0.00337	0.00337	mg/kg	08.21.17 15.53	U	1
Ethylbenzene	100-41-4	<0.00337	0.00337	mg/kg	08.21.17 15.53	U	1
m,p-Xylenes	179601-23-1	<0.00673	0.00673	mg/kg	08.21.17 15.53	U	1
o-Xylene	95-47-6	<0.00337	0.00337	mg/kg	08.21.17 15.53	U	1
Total Xylenes	1330-20-7	<0.00337	0.00337	mg/kg	08.21.17 15.53	U	1
Total BTEX		<0.00337	0.00337	mg/kg	08.21.17 15.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	80-120	08.21.17 15.53		
1,4-Difluorobenzene	540-36-3	90	%	80-120	08.21.17 15.53		



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **West- 1'**
Lab Sample Id: 560034-008

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3025638

Date Prep: 08.21.17 17.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.94	4.94	mg/kg	08.22.17 01.11	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3025050

Date Prep: 08.14.17 11.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.14.17 21.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.14.17 21.00	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.14.17 21.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.14.17 21.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	08.14.17 21.00	
o-Terphenyl	84-15-1	94	%	70-135	08.14.17 21.00	



Certificate of Analytical Results 560034



COG Operating LLC, Artesia, NM

SRO State Com #018H

Sample Id: **West- 1'**
Lab Sample Id: 560034-008

Matrix: Soil
Date Collected: 08.07.17 11.30

Date Received: 08.11.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 08.18.17 16.40

Basis: Wet Weight

Seq Number: 3025509

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00864	0.00202	mg/kg	08.19.17 00.53		1
Toluene	108-88-3	0.0132	0.00202	mg/kg	08.19.17 00.53		1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	08.19.17 00.53	U	1
m,p-Xylenes	179601-23-1	0.00450	0.00403	mg/kg	08.19.17 00.53		1
o-Xylene	95-47-6	0.00421	0.00202	mg/kg	08.19.17 00.53		1
Total Xylenes	1330-20-7	0.00871	0.00202	mg/kg	08.19.17 00.53		1
Total BTEX		0.0306	0.00202	mg/kg	08.19.17 00.53		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	80-120	08.19.17 00.53		
4-Bromofluorobenzene	460-00-4	88	%	80-120	08.19.17 00.53		

- 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

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 1211 W Florida Ave, Midland, TX 79701
 2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282

Phone	Fax
(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	



QC Summary 560034

COG Operating LLC SRO State Com #018H

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025638

Matrix: Solid

Prep Method: E300P

MB Sample Id: 729712-1-BLK

LCS Sample Id: 729712-1-BKS

Date Prep: 08.21.17

LCSD Sample Id: 729712-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.99	250	258	103	255	102	90-110	1	20	mg/kg	08.21.17 23:31	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025638

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 560034-001

MS Sample Id: 560034-001 S

Date Prep: 08.21.17

MSD Sample Id: 560034-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9.36	249	268	104	267	103	90-110	0	20	mg/kg	08.21.17 23:54	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3025638

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 560035-003

MS Sample Id: 560035-003 S

Date Prep: 08.21.17

MSD Sample Id: 560035-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.98	249	268	108	263	106	90-110	2	20	mg/kg	08.22.17 01:42	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3025050

Matrix: Solid

Prep Method: TX1005P

MB Sample Id: 729376-1-BLK

LCS Sample Id: 729376-1-BKS

Date Prep: 08.14.17

LCSD Sample Id: 729376-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	949	95	988	99	70-135	4	35	mg/kg	08.14.17 12:34	
Diesel Range Organics (DRO)	<15.0	1000	1090	109	1060	106	70-135	3	35	mg/kg	08.14.17 12:34	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	117		117		115		70-135	%	08.14.17 12:34
o-Terphenyl	122		113		109		70-135	%	08.14.17 12:34



QC Summary 560034

COG Operating LLC SRO State Com #018H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3025050

Parent Sample Id: 560033-001

Matrix: Soil

MS Sample Id: 560033-001 S

Prep Method: TX1005P

Date Prep: 08.14.17

MSD Sample Id: 560033-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	999	845	85	921	92	70-135	9	35	mg/kg	08.14.17 13:35	
Diesel Range Organics (DRO)	1250	999	1150	0	1230	0	70-135	7	35	mg/kg	08.14.17 13:35	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	103		110		70-135	%	08.14.17 13:35
o-Terphenyl	119		124		70-135	%	08.14.17 13:35

Analytical Method: BTEX by EPA 8021B

Seq Number: 3025509

MB Sample Id: 729627-1-BLK

Matrix: Solid

LCS Sample Id: 729627-1-BKS

Prep Method: SW5030B

Date Prep: 08.18.17

LCSD Sample Id: 729627-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.123	122	0.115	115	70-130	7	35	mg/kg	08.18.17 20:51	
Toluene	<0.00202	0.101	0.122	121	0.113	113	70-130	8	35	mg/kg	08.18.17 20:51	
Ethylbenzene	<0.00202	0.101	0.124	123	0.115	115	71-129	8	35	mg/kg	08.18.17 20:51	
m,p-Xylenes	<0.00403	0.202	0.243	120	0.223	111	70-135	9	35	mg/kg	08.18.17 20:51	
o-Xylene	<0.00202	0.101	0.120	119	0.110	110	71-133	9	35	mg/kg	08.18.17 20:51	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		97		97		80-120	%	08.18.17 20:51
4-Bromofluorobenzene	87		90		89		80-120	%	08.18.17 20:51

Analytical Method: BTEX by EPA 8021B

Seq Number: 3025537

MB Sample Id: 729681-1-BLK

Matrix: Solid

LCS Sample Id: 729681-1-BKS

Prep Method: SW5030B

Date Prep: 08.21.17

LCSD Sample Id: 729681-1-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	0.110	111	0.108	109	70-130	2	35	mg/kg	08.21.17 15:53	
Toluene	<0.00199	0.0994	0.122	123	0.118	119	70-130	3	35	mg/kg	08.21.17 15:53	
Ethylbenzene	<0.00199	0.0994	0.113	114	0.111	112	71-129	2	35	mg/kg	08.21.17 15:53	
m,p-Xylenes	<0.00398	0.199	0.228	115	0.226	114	70-135	1	35	mg/kg	08.21.17 15:53	
o-Xylene	<0.00199	0.0994	0.116	117	0.114	115	71-133	2	35	mg/kg	08.21.17 15:53	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		99		104		80-120	%	08.21.17 15:53
4-Bromofluorobenzene	113		108		114		80-120	%	08.21.17 15:53



QC Summary 560034

COG Operating LLC SRO State Com #018H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3025509

Parent Sample Id: 560034-002

Matrix: Soil

MS Sample Id: 560034-002 S

Prep Method: SW5030B

Date Prep: 08.18.17

MSD Sample Id: 560034-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.0185	0.0992	0.0835	66	0.0729	54	70-130	14	35	mg/kg	08.18.17 21:29	X
Toluene	0.0298	0.0992	0.0822	53	0.0711	41	70-130	14	35	mg/kg	08.18.17 21:29	X
Ethylbenzene	0.00460	0.0992	0.0744	70	0.0658	61	71-129	12	35	mg/kg	08.18.17 21:29	X
m,p-Xylenes	0.0107	0.198	0.144	67	0.127	58	70-135	13	35	mg/kg	08.18.17 21:29	X
o-Xylene	0.00380	0.0992	0.0731	70	0.0653	62	71-133	11	35	mg/kg	08.18.17 21:29	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		102		80-120	%	08.18.17 21:29
4-Bromofluorobenzene	101		99		80-120	%	08.18.17 21:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3025537

Parent Sample Id: 560611-008

Matrix: Soil

MS Sample Id: 560611-008 S

Prep Method: SW5030B

Date Prep: 08.21.17

MSD Sample Id: 560611-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.105	104	0.108	107	70-130	3	35	mg/kg	08.21.17 15:53	
Toluene	<0.00201	0.101	0.111	110	0.114	113	70-130	3	35	mg/kg	08.21.17 15:53	
Ethylbenzene	<0.00201	0.101	0.100	99	0.110	109	71-129	10	35	mg/kg	08.21.17 15:53	
m,p-Xylenes	<0.00402	0.201	0.180	90	0.222	110	70-135	21	35	mg/kg	08.21.17 15:53	
o-Xylene	<0.00201	0.101	0.108	107	0.112	111	71-133	4	35	mg/kg	08.21.17 15:53	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		91		80-120	%	08.21.17 15:53
4-Bromofluorobenzene	106		103		80-120	%	08.21.17 15:53



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San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

www.xenco.com

Client / Reporting Information						Project Information						Analytical Information			Matrix Codes								
Company Name / Branch: COG Operating LLC Company Address: 2407 PECOS Avenue Artesia NM 88210						Project Name/Number: SRO State Com #018H Project Location: SRO State Com #0- Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Midland TX 79701																	
Email: alib@concho.com dneel2@concho.com raskell@concho.com						Phone No: 575-748-1553																	
Project Contact: Aaron Lieb						PO Number:																	
Sampler's Name: Aaron Lieb																							
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments					
1	North - Surface	-	8-7-17	11:30am	S	1									X	X	X						
2	North - 1'	-													X	X	X						
3	South - Surface	-													X	X	X						
4	South - 1'	-													X	X	X						
5	East - Surface	-													X	X	X						
6	East - 1'	-													X	X	X						
7	West - Surface	-													X	X	X						
8	West - 1'	-													X	X	X						
9																							
10																							
Turnaround Time (Business days)						Data Deliverable Information						Notes:											
☐ Same Day TAT						☐ 5 Day TAT						☐ Level II Std QC						☐ Level IV (Full Data Pkg /raw data)					
☐ Next Day EMERGENCY						☐ 7 Day TAT						☐ Level III Std QC+ Forms						☐ TRRP Level IV					
☐ 2 Day EMERGENCY						☐ Contract TAT						☐ Level 3 (CLP Forms)						☐ UST / RG -411					
☐ 3 Day EMERGENCY												☐ TRRP Checklist											
TAT Starts Day received by Lab, if received by 5:00 pm																							
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																							
Relinquished by Sampler:						Date Time: 8-11-17 10:00 AM Received By: 1 Deborah 5-11-17 10A						Relinquished By: 2 Deborah 5-11-17 10A						Received By: 2					
Relinquished by: 3 Melissa Monroya						Date Time: 8-12-17 14:20 Received By: 3						Relinquished By: 4						Custody Seal # 4					
Relinquished by: 5						Date Time: 5 Received By: 5						Preserved where applicable											

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 for any losses or expenses incurred by the Client if such losses 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 will be enforced unless previously negotiated under a fully executed client contract.

Temp: 3.8 IR ID: R-8
CF: (0.6; -0.2°C)
(6-23; +0.2°C)
Corrected Temp: 3.6



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 08/11/2017 11:45:00 AM

Work Order #: 560034

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)?	3.6
#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
Jessica Kramer

Date: 08/14/2017

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks

Date: 08/14/2017