



October 26, 2018

Maria Pruett
Oil Conservation Division, District 2
811 S First St.
Artesia, NM 88210

Ryan Mann
New Mexico State Land Office
1001 S. Atkinson
Roswell, NM 88230

**Re: Closure Report
SRO State Com 17H (8/16/18) (Illegal Dump)
RP#: 2RP-4930
GPS: 32.061676, -104.0999146
Unit Letter D, Section 9, Township 26 South, Range 28 East
Eddy County, New Mexico**

Ms. Pruett/ Mr. Ryan,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred at the SRO State Com 17H Tank Battery located in Unit Letter D, Section 9, Township 26 South and Range 28 East in Eddy County, New Mexico.

BACKGROUND

An illegal dump was discovered on August 16, 2018 and a C-141 initial report was submitted and approved by the New Mexico Oil Conservation Division (NMOCD). The illegal dump occurred on the lease road entrance into the facility. All of the oil and produced water remained on the lease road. COG immediately scraped the impact material and hauled to proper disposal. Approximately twenty-five (25) barrels of oil and produced water were released with no fluids recovered. The initial C-141 is shown in Appendix A.

GROUNDWATER AND REGULATORY

According to the State Engineer Office and USGS groundwater data, the depth to groundwater in the area appears to be <50 feet below surface. The water well information is shown in Appendix B.

An evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production facilities in New Mexico (effective August 14, 2018). According to the site characterization evaluation, no other receptors (water wells, playas, karst, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The groundwater data and the site

characterization evaluation data is summarized in Appendix B. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
None Encountered	<50 feet

Delineation and Closure Criteria:

Remedial Action Levels (RALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
TPH (GRO and DRO)	NA
Benzene	10 mg/kg
Total BTEX	50 mg/kg

REMEDIATION PLAN

All samples were below the Table 1 closure criteria and thus no remediation will occur.

SITE RECLAMATION AND RESTORATION

All of the material remained on the lease road and no reclamation is required for the release.

CLOSURE REQUEST

Based on the information provided, COG requesting closure of the release. The signed C-141 Final is included in Appendix A. Should you have any questions or concerns on the proposed activities, please do not hesitate to contact me.

Sincerely,

Concho Operating, LLC



Ike Tavarez, P. G.
Senior HSE Supervisor
itavarez@concho.com

CC:

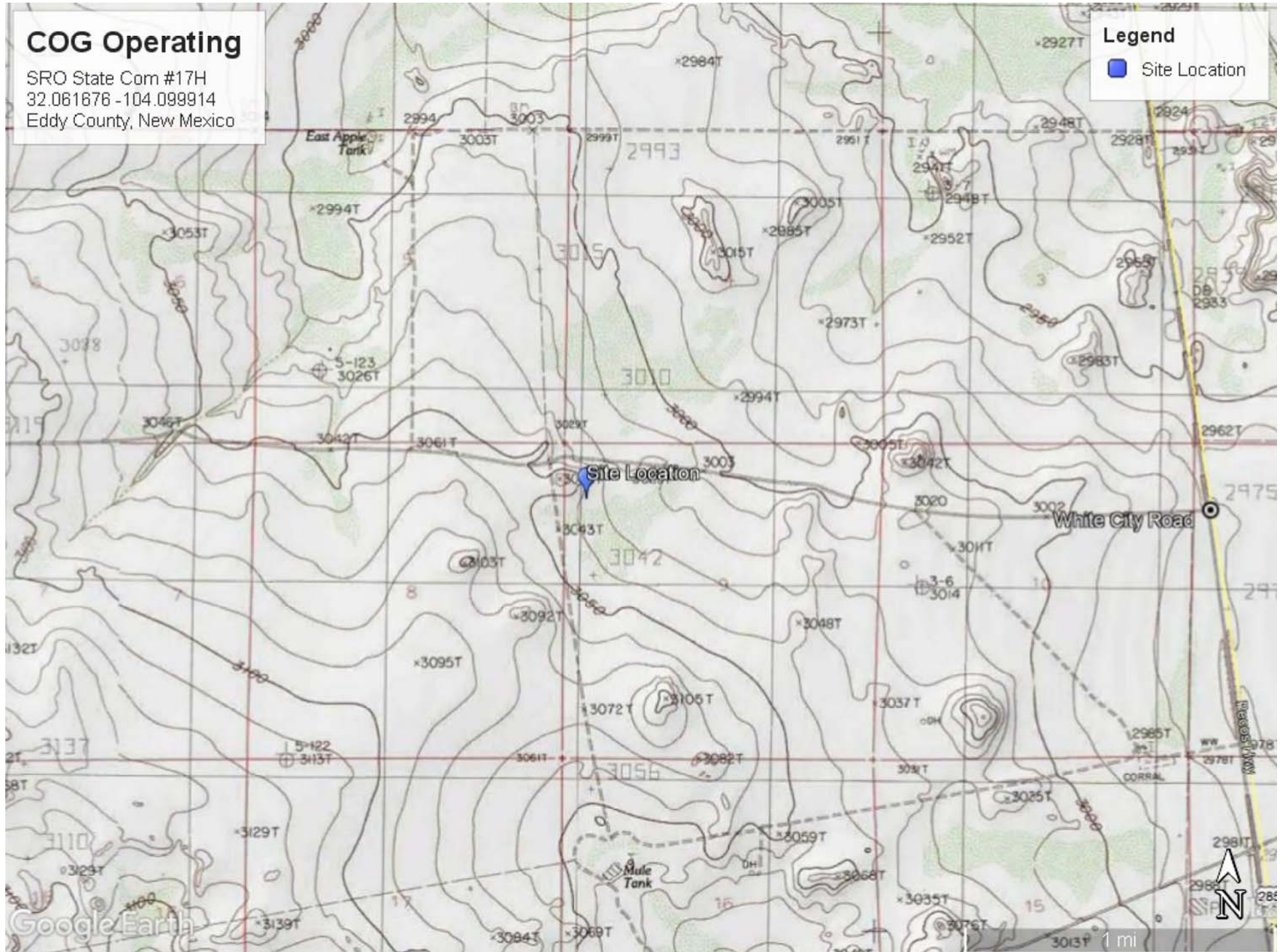
Figures

COG Operating

SRO State Com #17H
32.061676 -104.099914
Eddy County, New Mexico

Legend

Site Location



COG Operating

SRO State Com #17H
32.061676 -104.099914
Eddy County, New Mexico

Legend

- Sample Locations
- Spill Area

CAH-1 CAH-2 CAH-3

Google Earth

200 ft

N



Tables

Table 1
COG Operating LLC.
SRO 17 State 1 H
Eddy County, New Mexico

Sample ID	Sample Date	Soil Status		TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
		In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO	Total			
Average Depth to Groundwater (ft) Less 50 feet													
NMOCD Remediation Action Limits (mg/kg)				-	-	-	100	-	-	-	10	50	600
AH-1 (0-1')	9/12/2018	X		<15.0	28.3	<15.0	28.3	<15.0	28.3	28.3	<0.00201	<0.00201	194
AH-1 (1-1.5')	9/12/2018	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	349
AH-2 (0-1')	9/12/2018	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	81.7
AH-2 (1-1.5')	9/12/2018	X		<14.9	<14.9	<14.9	<14.9	<14.9	<14.9	<14.9	<0.00202	<0.00202	87.0
AH-3 (0-1')	9/12/2018	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	92.2
AH-3 (1-1.5')	9/12/2018	X		<14.9	15.9	<14.9	15.9	<14.9	15.9	15.9	<0.00198	<0.00198	114
North (0-1')	9/12/2018	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<5.02
South (0-1')	9/12/2018	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<5.01
East (0-1')	9/12/2018	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	321
West (0-1')	9/12/2018	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<5.02

Proposed Excavation Depth

(-)

Not Analyzed

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 April 3, 2017

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 (229137)	Contact: Robert McNeill	
Address: 600 West Illinois Avenue, Midland, TX 79701	Telephone No. 432-683-7443	
Facility Name: SRO State Com #017H (Illegal Dump)	Facility Type: Tank Battery	
Surface Owner: State	Mineral Owner: State	API No. 30-015-38257

LOCATION OF RELEASE

Unit Letter D	Section 09	Township 26S	Range 28E	Feet from the 990	North/South Line North	Feet from the 330	East/West Line West	County Eddy
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Latitude 32.061676 Longitude -104.0999146 NAD83

NATURE OF RELEASE

Type of Release Oil & Produced Water	Volume of Release Estimated 25 bbl.	Volume Recovered 0 bbl.
Source of Release Illegal Dump	Date and Hour of Occurrence August 16, 2018 11:30am	Date and Hour of Discovery August 16, 2018 11:30am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Maria Pruett – NMOCD Mike Bratcher – NMOCD Ryan Mann - SLO	
By Whom? DeAnn Grant	Date and Hour August 16, 2018 3:57pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

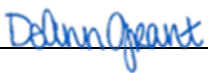
Describe Cause of Problem and Remedial Action Taken.*

The spill was an illegal dump on a COG location.

Describe Area Affected and Cleanup Action Taken.*

The release occurred on location. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area evaluated for 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: 	OIL CONSERVATION DIVISION	
Printed Name: DeAnn Grant	Approved by Environmental Specialist:	
Title: HSE Administrative Assistant	Approval Date:	Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval:	Attached ☐
Date: August 16, 2018	Phone: (432) 253-4513	

* Attach Additional Sheets If Necessary

Incident ID	
District RP	2RP 4930
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>Less 50'</u> bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
515 Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas not on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: <i>Each of the following items must be included in the report.</i>
☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☐ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☐ Boring or excavation logs
☐ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Incident ID	
District RP	2RP 4930
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Ike Tavaréz Title: Senior HSE Supervisor

Signature:  Date: 10/24/18

email: itavarez@concho.com Telephone: 432-683-7443

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	2RP 4930
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: Each of the following items must be included in the closure report.

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of 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 OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 10/24/18

email: itavarez@concho.com Telephone: 432-683-7443

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Appendix B

COG Operating

SRO State Corn #17H
32.061676 -104.099914
Eddy County, New Mexico

Legend

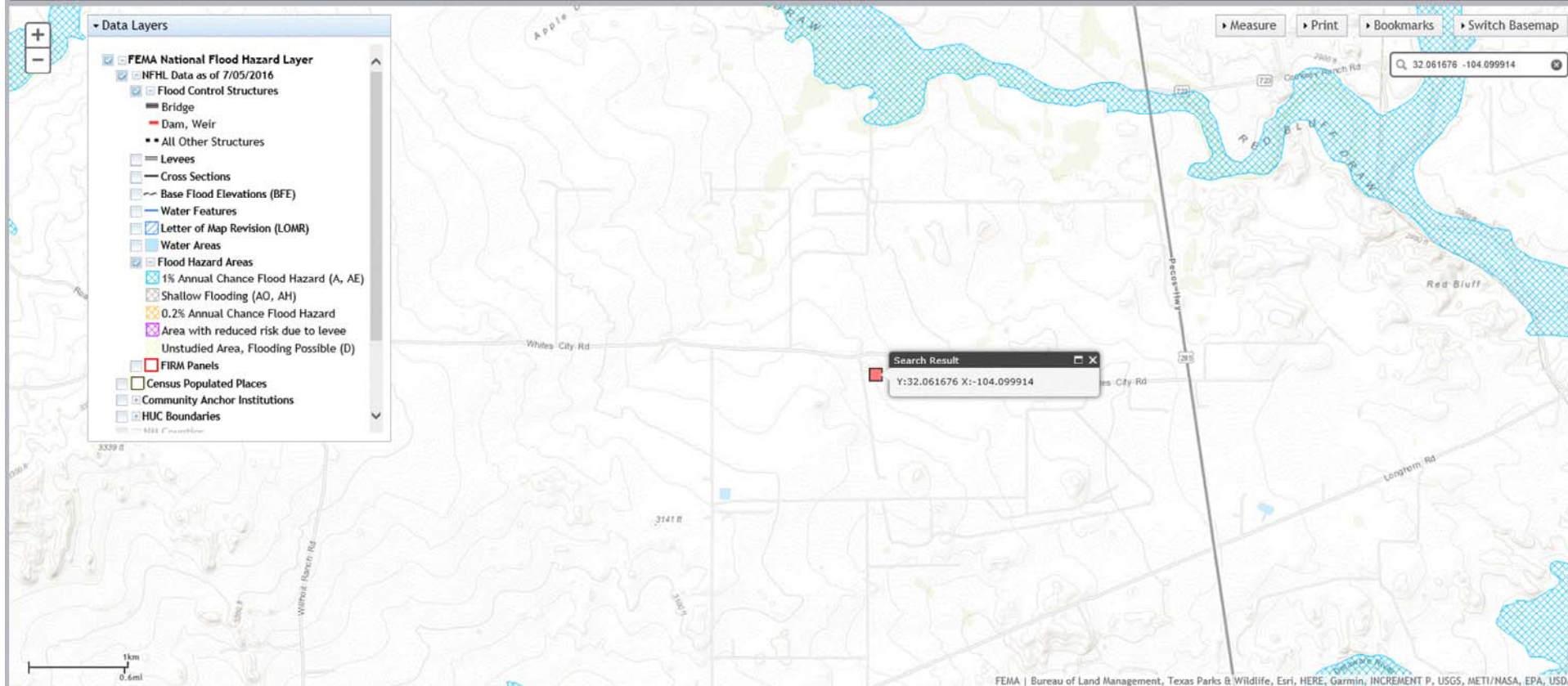
-  32.07710 -104.0825530 SRO 10 H
-  High
-  Low
-  Medium
-  Site Location

Site Location

Google Earth

3000 ft

N





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD	County	Q	Q	Q	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column	
		Sub-basin		64	16	4									
C_01668		CUB	ED	3	3	12	26S	28E	589957	3546554*	☐	250	100	150	
C_02160		CUB	ED	4	1	2	14	26S	28E	589243	3546044*	☐	300	120	180
C_02160 S		CUB	ED	1	1	2	14	26S	28E	589043	3546244*	☐	300	120	180
C_02160 S2		CUB	ED	1	1	2	14	26S	28E	589043	3546244*	☐	300	120	180
C_02160 S3		CUB	ED	2	2	1	14	26S	28E	588834	3546241*	☐	300	120	180
C_02160 S4		CUB	ED	2	2	1	14	26S	28E	588834	3546241*	☐	300	120	180
C_02160 S5		CUB	ED	1	1	1	14	26S	28E	588225	3546237*	☐	300	120	180
C_02160 S6		CUB	ED	3	3	1	14	26S	28E	588232	3545635*	☐	300	120	180
C_02160 S7		CUB	ED	3	3	1	22	26S	28E	586638	3543998*	☐	300	120	180
C_02160 S8		CUB	ED	2	3	3	12	26S	28E	590056	3546653*	☐	200	120	80
C_02160 S9		CUB	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

Average Depth to Water: **124 feet**

Minimum Depth: **100 feet**

Maximum Depth: **175 feet**

Record Count: 20

PLSS Search:

Township: 26S **Range:** 28E

***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.

11/1/18 9:39 AM

WATER COLUMN/ AVERAGE DEPTH TO
WATER

Appendix C



Certificate of Analysis Summary 598936

COG Operating LLC, Artesia, NM

Project Name: SRO 17 State 1H



Project Id:

Contact: Ike Tavaréz

Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Sep-13-18 09:15 am

Report Date: 18-SEP-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	598936-001	598936-002	598936-003	598936-004	598936-005	598936-006
	Field Id:	AH-1 (0-1')	AH-1 (1-1.5')	AH-2 (0-1')	AH-2 (1-1.5')	AH-3 (0-1')	AH-3 (1-1.5')
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Sep-12-18 10:00	Sep-12-18 10:00	Sep-12-18 10:00	Sep-12-18 10:00	Sep-12-18 10:00	Sep-12-18 10:00
BTEX by EPA 8021B	Extracted:	Sep-14-18 08:00	Sep-14-18 08:00	Sep-14-18 08:00	Sep-14-18 08:00	Sep-14-18 08:00	Sep-14-18 08:00
	Analyzed:	Sep-14-18 10:46	Sep-14-18 15:18	Sep-14-18 15:39	Sep-14-18 16:01	Sep-14-18 16:22	Sep-14-18 16:43
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198
m,p-Xylenes		<0.00402 0.00402	<0.00399 0.00399	<0.00398 0.00398	<0.00403 0.00403	<0.00399 0.00399	<0.00397 0.00397
o-Xylene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198
Total BTEX		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198
Chloride by EPA 300	Extracted:	Sep-14-18 17:00	Sep-14-18 17:00	Sep-14-18 17:00	Sep-14-18 17:00	Sep-14-18 17:00	Sep-14-18 17:00
	Analyzed:	Sep-15-18 07:47	Sep-15-18 07:55	Sep-15-18 08:02	Sep-15-18 08:10	Sep-15-18 08:17	Sep-15-18 08:24
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		194 49.5	349 49.5	81.7 50.1	87.0 49.5	92.2 49.9	114 49.9
TPH By SW8015 Mod	Extracted:	Sep-13-18 15:00	Sep-13-18 15:00	Sep-13-18 15:00	Sep-13-18 15:00	Sep-13-18 15:00	Sep-13-18 15:00
	Analyzed:	Sep-13-18 21:12	Sep-13-18 21:31	Sep-13-18 21:51	Sep-13-18 22:11	Sep-13-18 22:31	Sep-13-18 22:51
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<14.9 14.9
Diesel Range Organics		28.3 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	15.9 14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<14.9 14.9
Total TPH		28.3 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	15.9 14.9

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 598936

COG Operating LLC, Artesia, NM

Project Name: SRO 17 State 1H



Project Id:

Contact: Ike Tavaréz

Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Sep-13-18 09:15 am

Report Date: 18-SEP-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	598936-007	598936-008	598936-009	598936-010		
	<i>Field Id:</i>	North (0-1')	South (0-1')	East (0-1')	West (0-1')		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Sep-12-18 10:00	Sep-12-18 10:00	Sep-12-18 10:00	Sep-12-18 10:00		
BTEX by EPA 8021B	<i>Extracted:</i>	Sep-14-18 08:00	Sep-14-18 08:00	Sep-17-18 08:00	Sep-17-18 08:00		
	<i>Analyzed:</i>	Sep-14-18 17:04	Sep-14-18 17:26	Sep-17-18 10:54	Sep-17-18 11:14		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
m,p-Xylenes		<0.00400 0.00400	<0.00401 0.00401	<0.00397 0.00397	<0.00399 0.00399		
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	Sep-14-18 17:00	Sep-14-18 17:00	Sep-15-18 09:00	Sep-15-18 09:00		
	<i>Analyzed:</i>	Sep-15-18 05:04	Sep-15-18 06:48	Sep-15-18 10:52	Sep-15-18 10:30		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		<5.02 5.02	<5.01 5.01	321 49.9	<5.02 5.02		
TPH By SW8015 Mod	<i>Extracted:</i>	Sep-13-18 15:00	Sep-13-18 15:00	Sep-13-18 15:00	Sep-13-18 15:00		
	<i>Analyzed:</i>	Sep-13-18 23:11	Sep-13-18 23:30	Sep-14-18 00:10	Sep-14-18 00:29		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Diesel Range Organics		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Total TPH		<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

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 598936

for COG Operating LLC

Project Manager: Ike Tavaréz

SRO 17 State 1H

18-SEP-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-16)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

Xenco-Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



18-SEP-18

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **598936**

SRO 17 State 1H

Project Address: Eddy County, New Mexico

Ike Tavaréz:

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) 598936. 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. 598936 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,

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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



Sample Cross Reference 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 (0-1')	S	09-12-18 10:00		598936-001
AH-1 (1-1.5')	S	09-12-18 10:00		598936-002
AH-2 (0-1')	S	09-12-18 10:00		598936-003
AH-2 (1-1.5')	S	09-12-18 10:00		598936-004
AH-3 (0-1')	S	09-12-18 10:00		598936-005
AH-3 (1-1.5')	S	09-12-18 10:00		598936-006
North (0-1')	S	09-12-18 10:00		598936-007
South (0-1')	S	09-12-18 10:00		598936-008
East (0-1')	S	09-12-18 10:00		598936-009
West (0-1')	S	09-12-18 10:00		598936-010



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: SRO 17 State 1H

Project ID:
Work Order Number(s): 598936

Report Date: 18-SEP-18
Date Received: 09/13/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3063402 BTEX by EPA 8021B

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

Lab Sample ID 598936-001 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: 598936-001, -002, -003, -004, -005, -006, -007, -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-3063482 BTEX by EPA 8021B

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



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **AH-1 (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-001

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	194	49.5	mg/kg	09.15.18 07.47		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.13.18 21.12	U	1
Diesel Range Organics	C10C28DRO	28.3	15.0	mg/kg	09.13.18 21.12		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.13.18 21.12	U	1
Total TPH	PHC635	28.3	15.0	mg/kg	09.13.18 21.12		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	09.13.18 21.12	
o-Terphenyl	84-15-1	98	%	70-135	09.13.18 21.12	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **AH-1 (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-001

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.14.18 10.46	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.14.18 10.46	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.14.18 10.46	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.14.18 10.46	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.14.18 10.46	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.14.18 10.46	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.14.18 10.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	09.14.18 10.46		
4-Bromofluorobenzene	460-00-4	91	%	70-130	09.14.18 10.46		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-1 (1-1.5')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-002

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	349	49.5	mg/kg	09.15.18 07.55		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.13.18 21.31	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.13.18 21.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.13.18 21.31	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.13.18 21.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	09.13.18 21.31	
o-Terphenyl	84-15-1	92	%	70-135	09.13.18 21.31	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-1 (1-1.5')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-002

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.18 15.18	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.18 15.18	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.18 15.18	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.14.18 15.18	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.18 15.18	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.18 15.18	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.18 15.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	09.14.18 15.18		
1,4-Difluorobenzene	540-36-3	110	%	70-130	09.14.18 15.18		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-2 (0-1')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-003

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	81.7	50.1	mg/kg	09.15.18 08.02		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.13.18 21.51	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.13.18 21.51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.13.18 21.51	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.13.18 21.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	09.13.18 21.51	
o-Terphenyl	84-15-1	94	%	70-135	09.13.18 21.51	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-2 (0-1')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-003

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.14.18 15.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.14.18 15.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.14.18 15.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.14.18 15.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.14.18 15.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.14.18 15.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.14.18 15.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	09.14.18 15.39		
1,4-Difluorobenzene	540-36-3	113	%	70-130	09.14.18 15.39		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-2 (1-1.5')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-004

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	87.0	49.5	mg/kg	09.15.18 08.10		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	09.13.18 22.11	U	1
Diesel Range Organics	C10C28DRO	<14.9	14.9	mg/kg	09.13.18 22.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.13.18 22.11	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	09.13.18 22.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	09.13.18 22.11	
o-Terphenyl	84-15-1	91	%	70-135	09.13.18 22.11	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-2 (1-1.5')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-004

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.14.18 16.01	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.14.18 16.01	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.14.18 16.01	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.14.18 16.01	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.14.18 16.01	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.14.18 16.01	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.14.18 16.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	09.14.18 16.01		
1,4-Difluorobenzene	540-36-3	108	%	70-130	09.14.18 16.01		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-3 (0-1')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-005

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	92.2	49.9	mg/kg	09.15.18 08.17		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.13.18 22.31	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.13.18 22.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.13.18 22.31	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.13.18 22.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	09.13.18 22.31	
o-Terphenyl	84-15-1	96	%	70-135	09.13.18 22.31	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **AH-3 (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-005

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.18 16.22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.18 16.22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.18 16.22	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.14.18 16.22	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.18 16.22	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.18 16.22	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.18 16.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	09.14.18 16.22		
1,4-Difluorobenzene	540-36-3	94	%	70-130	09.14.18 16.22		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-3 (1-1.5')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-006

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	114	49.9	mg/kg	09.15.18 08.24		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	09.13.18 22.51	U	1
Diesel Range Organics	C10C28DRO	15.9	14.9	mg/kg	09.13.18 22.51		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.13.18 22.51	U	1
Total TPH	PHC635	15.9	14.9	mg/kg	09.13.18 22.51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	09.13.18 22.51	
o-Terphenyl	84-15-1	94	%	70-135	09.13.18 22.51	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: AH-3 (1-1.5')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-006

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.14.18 16.43	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	09.14.18 16.43	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	09.14.18 16.43	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	09.14.18 16.43	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	09.14.18 16.43	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	09.14.18 16.43	U	1
Total BTEX		<0.00198	0.00198	mg/kg	09.14.18 16.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	09.14.18 16.43		
1,4-Difluorobenzene	540-36-3	101	%	70-130	09.14.18 16.43		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **North (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-007

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.02	5.02	mg/kg	09.15.18 05.04	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.13.18 23.11	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.13.18 23.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.13.18 23.11	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.13.18 23.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	09.13.18 23.11	
o-Terphenyl	84-15-1	96	%	70-135	09.13.18 23.11	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **North (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-007

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.18 17.04	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.18 17.04	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.18 17.04	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	09.14.18 17.04	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.18 17.04	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.18 17.04	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.18 17.04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	09.14.18 17.04		
1,4-Difluorobenzene	540-36-3	102	%	70-130	09.14.18 17.04		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **South (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-008

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.14.18 17.00

Basis: Wet Weight

Seq Number: 3063385

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.01	5.01	mg/kg	09.15.18 06.48	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.13.18 23.30	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.13.18 23.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.13.18 23.30	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.13.18 23.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	09.13.18 23.30	
o-Terphenyl	84-15-1	91	%	70-135	09.13.18 23.30	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **South (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-008

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.14.18 08.00

Basis: Wet Weight

Seq Number: 3063402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.14.18 17.26	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.14.18 17.26	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.14.18 17.26	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.14.18 17.26	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.14.18 17.26	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.14.18 17.26	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.14.18 17.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	90	%	70-130	09.14.18 17.26		
1,4-Difluorobenzene	540-36-3	95	%	70-130	09.14.18 17.26		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: East (0-1')

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-009

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.15.18 09.00

Basis: Wet Weight

Seq Number: 3063387

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	321	49.9	mg/kg	09.15.18 10.52		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.14.18 00.10	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.14.18 00.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.14.18 00.10	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.14.18 00.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	09.14.18 00.10	
o-Terphenyl	84-15-1	91	%	70-135	09.14.18 00.10	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **East (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-009

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.17.18 08.00

Basis: Wet Weight

Seq Number: 3063482

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.17.18 10.54	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	09.17.18 10.54	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	09.17.18 10.54	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	09.17.18 10.54	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	09.17.18 10.54	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	09.17.18 10.54	U	1
Total BTEX		<0.00198	0.00198	mg/kg	09.17.18 10.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	09.17.18 10.54		
1,4-Difluorobenzene	540-36-3	95	%	70-130	09.17.18 10.54		



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **West (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-010

Date Collected: 09.12.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 09.15.18 09.00

Basis: Wet Weight

Seq Number: 3063387

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.02	5.02	mg/kg	09.15.18 10.30	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 09.13.18 15.00

Basis: Wet Weight

Seq Number: 3063213

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.14.18 00.29	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.14.18 00.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.14.18 00.29	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.14.18 00.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	09.14.18 00.29	
o-Terphenyl	84-15-1	93	%	70-135	09.14.18 00.29	



Certificate of Analytical Results 598936



COG Operating LLC, Artesia, NM

SRO 17 State 1H

Sample Id: **West (0-1')**

Matrix: Soil

Date Received: 09.13.18 09.15

Lab Sample Id: 598936-010

Date Collected: 09.12.18 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 09.17.18 08.00

Basis: Wet Weight

Seq Number: 3063482

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.17.18 11.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.17.18 11.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.17.18 11.14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.17.18 11.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.17.18 11.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.17.18 11.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.17.18 11.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	09.17.18 11.14		
1,4-Difluorobenzene	540-36-3	98	%	70-130	09.17.18 11.14		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

COG Operating LLC
SRO 17 State 1H**Analytical Method: Chloride by EPA 300**

Seq Number: 3063385

MB Sample Id: 7662355-1-BLK

Matrix: Solid

LCS Sample Id: 7662355-1-BKS

Prep Method: E300P

Date Prep: 09.14.18

LCSD Sample Id: 7662355-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	267	107	265	106	90-110	1	20	mg/kg	09.15.18 04:49	

Analytical Method: Chloride by EPA 300

Seq Number: 3063387

MB Sample Id: 7662356-1-BLK

Matrix: Solid

LCS Sample Id: 7662356-1-BKS

Prep Method: E300P

Date Prep: 09.15.18

LCSD Sample Id: 7662356-1-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	255	102	257	103	90-110	1	20	mg/kg	09.15.18 10:15	

Analytical Method: Chloride by EPA 300

Seq Number: 3063385

Parent Sample Id: 598936-007

Matrix: Soil

MS Sample Id: 598936-007 S

Prep Method: E300P

Date Prep: 09.14.18

MSD Sample Id: 598936-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.862	251	261	104	261	104	90-110	0	20	mg/kg	09.15.18 05:11	

Analytical Method: Chloride by EPA 300

Seq Number: 3063385

Parent Sample Id: 598936-008

Matrix: Soil

MS Sample Id: 598936-008 S

Prep Method: E300P

Date Prep: 09.14.18

MSD Sample Id: 598936-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.860	251	267	106	271	108	90-110	1	20	mg/kg	09.15.18 06:55	

Analytical Method: Chloride by EPA 300

Seq Number: 3063387

Parent Sample Id: 598885-008

Matrix: Soil

MS Sample Id: 598885-008 S

Prep Method: E300P

Date Prep: 09.15.18

MSD Sample Id: 598885-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2.59	250	274	109	273	108	90-110	0	20	mg/kg	09.15.18 13:59	

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

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

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

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

COG Operating LLC
SRO 17 State 1H

Analytical Method: Chloride by EPA 300

Seq Number: 3063387

Parent Sample Id: 598936-010

Matrix: Soil

MS Sample Id: 598936-010 S

Prep Method: E300P

Date Prep: 09.15.18

MSD Sample Id: 598936-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.862	251	266	106	267	106	90-110	0	20	mg/kg	09.15.18 10:37	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3063213

MB Sample Id: 7662292-1-BLK

Matrix: Solid

LCS Sample Id: 7662292-1-BKS

Prep Method: TX1005P

Date Prep: 09.13.18

LCSD Sample Id: 7662292-1-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	<8.00	1000	854	85	878	88	70-135	3	20	mg/kg	09.13.18 15:51	
Diesel Range Organics	<8.13	1000	907	91	915	92	70-135	1	20	mg/kg	09.13.18 15:51	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	89		124		126		70-135	%	09.13.18 15:51
o-Terphenyl	96		104		102		70-135	%	09.13.18 15:51

Analytical Method: TPH By SW8015 Mod

Seq Number: 3063213

Parent Sample Id: 598935-001

Matrix: Soil

MS Sample Id: 598935-001 S

Prep Method: TX1005P

Date Prep: 09.13.18

MSD Sample Id: 598935-001 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	<8.00	1000	840	84	858	86	70-135	2	20	mg/kg	09.13.18 16:51	
Diesel Range Organics	<8.13	1000	894	89	915	92	70-135	2	20	mg/kg	09.13.18 16:51	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	125		125		70-135	%	09.13.18 16:51
o-Terphenyl	115		111		70-135	%	09.13.18 16:51

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

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

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

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

COG Operating LLC
SRO 17 State 1H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3063402

MB Sample Id: 7662402-1-BLK

Matrix: Solid

LCS Sample Id: 7662402-1-BKS

Prep Method: SW5030B

Date Prep: 09.14.18

LCSD Sample Id: 7662402-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.0943	93	0.0982	97	70-130	4	35	mg/kg	09.14.18 08:05	
Toluene	<0.00201	0.101	0.0923	91	0.0945	94	70-130	2	35	mg/kg	09.14.18 08:05	
Ethylbenzene	<0.00201	0.101	0.0994	98	0.102	101	70-130	3	35	mg/kg	09.14.18 08:05	
m,p-Xylenes	<0.00402	0.201	0.191	95	0.196	97	70-130	3	35	mg/kg	09.14.18 08:05	
o-Xylene	<0.00201	0.101	0.0959	95	0.0980	97	70-130	2	35	mg/kg	09.14.18 08:05	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	97		92		95		70-130			%	09.14.18 08:05	
4-Bromofluorobenzene	90		93		97		70-130			%	09.14.18 08:05	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3063482

MB Sample Id: 7662448-1-BLK

Matrix: Solid

LCS Sample Id: 7662448-1-BKS

Prep Method: SW5030B

Date Prep: 09.17.18

LCSD Sample Id: 7662448-1-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	0.0948	95	0.103	103	70-130	8	35	mg/kg	09.17.18 08:53	
Toluene	<0.00200	0.0998	0.0926	93	0.102	102	70-130	10	35	mg/kg	09.17.18 08:53	
Ethylbenzene	<0.00200	0.0998	0.0976	98	0.108	108	70-130	10	35	mg/kg	09.17.18 08:53	
m,p-Xylenes	<0.00399	0.200	0.192	96	0.215	108	70-130	11	35	mg/kg	09.17.18 08:53	
o-Xylene	<0.00200	0.0998	0.0919	92	0.104	104	70-130	12	35	mg/kg	09.17.18 08:53	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	95		88		97		70-130	%	09.17.18 08:53			
4-Bromofluorobenzene	91		81		98		70-130	%	09.17.18 08:53			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3063402

Parent Sample Id: 598936-001

Matrix: Soil

MS Sample Id: 598936-001 S

Prep Method: SW5030B

Date Prep: 09.14.18

MSD Sample Id: 598936-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.0591	60	0.0482	48	70-130	20	35	mg/kg	09.14.18 09:13	X
Toluene	<0.00198	0.0992	0.0601	61	0.0460	46	70-130	27	35	mg/kg	09.14.18 09:13	X
Ethylbenzene	<0.00198	0.0992	0.0646	65	0.0465	46	70-130	33	35	mg/kg	09.14.18 09:13	X
m,p-Xylenes	<0.00397	0.198	0.123	62	0.0878	43	70-130	33	35	mg/kg	09.14.18 09:13	X
o-Xylene	<0.00198	0.0992	0.0630	64	0.0454	45	70-130	32	35	mg/kg	09.14.18 09:13	X
Surrogate			MS %Rec	MS Flag		MSD %Rec	MSD Flag	Limits		Units	Analysis Date	
1,4-Difluorobenzene			106			127		70-130		%	09.14.18 09:13	
4-Bromofluorobenzene			92			97		70-130		%	09.14.18 09:13	

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

COG Operating LLC
SRO 17 State 1H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3063482

Parent Sample Id: 598936-009

Matrix: Soil

MS Sample Id: 598936-009 S

Prep Method: SW5030B

Date Prep: 09.17.18

MSD Sample Id: 598936-009 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	0.0832	82	0.0758	75	70-130	9	35	mg/kg	09.17.18 09:33	
Toluene	<0.00201	0.101	0.0809	80	0.0756	75	70-130	7	35	mg/kg	09.17.18 09:33	
Ethylbenzene	<0.00201	0.101	0.0833	82	0.0764	76	70-130	9	35	mg/kg	09.17.18 09:33	
m,p-Xylenes	<0.00402	0.201	0.163	81	0.149	74	70-130	9	35	mg/kg	09.17.18 09:33	
o-Xylene	<0.00201	0.101	0.0778	77	0.0712	70	70-130	9	35	mg/kg	09.17.18 09:33	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		94		70-130	%	09.17.18 09:33
4-Bromofluorobenzene	93		93		70-130	%	09.17.18 09:33

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

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

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

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

Analysis Request of Chain of Custody Record



One Concho
Center/600 Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

598936

Page 1 of 1

Client Name: COG		Site Manager: Ike Tavaraz	
Project Name: SRO 17 State 1H		Project #:	
Project Location: Eddy County, New Mexico		Project #:	
Invoice to: COG		Project #:	
Receiving Laboratory: Xenco		Sampler Signature: Ike Tavaraz	
Comments: Run Deeper samples if TPH exceeds 1000 mg/kg.			

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		DATE	TIME	MATRIX		PRESERVATIVE METHOD		# CONTAINERS	FILTERED (Y/N)
		YEAR	DATE			WATER	SOIL	HCL	HNO ₃		
	AH-1 (0-1')			9/12/2018		X		X		1	
	AH-1 (1-1.5')			9/12/2018		X		X		1	
	AH-2 (0-1')			9/12/2018		X		X		1	
	AH-2 (1-1.5')			9/12/2018		X		X		1	
	AH-3 (0-1')			9/12/2018		X		X		1	
	AH-3 (1-1.5')			9/12/2018		X		X		1	
	North (0-1')			9-12-18		X		X		1	
	South (0-1')			9-12-18		X		X		1	
	East (0-1')			9-12-18		X		X		1	
	West (0-1')			9-12-18		X		X		1	

Relinquished by:	Date: 9-13-18	Time: 15	Received by:	Date: 9/13/18	Time: 0915
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST

(Circle or Specify Method No.)

BTEX 8021B	BTEX 8260B
TPH TX1005 (Ext to C35)	
TPH 8015M (GRO - DRO - MRO)	
PAH 8270C	
Total Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
TCLP Volatiles	
TCLP Semi Volatiles	
RCI	
GC/MS Vol. 8260B / 624	
GC/MS Semi. Vol. 8270C/625	
PCB's 8082 / 608	
NORM	
PLM (Asbestos)	
Chloride	
Chloride Sulfate TDS	
General Water Chemistry (see attached list)	
Anion/Cation Balance	
Hold	

LAB USE ONLY	REMARKS:
Sample Temperature	
0-3/0-0	
RE	
☒ RUSH: Same Day 24 hr 48 hr 12 hr	
☐ Rush Charges Authorized	
☐ Special Report Limits or TRRP Report	

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 09/13/2018 09:15:00 AM

Work Order #: 598936

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 09/13/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 09/13/2018