



HRL
COMPLIANCE
SOLUTIONS

P.O. Box 1708 • Artesia, NM 88211
www.hrlcomp.com

March 20, 2018

NMOCD District I
Olivia Yu
1625 North French Drive
Hobbs, New Mexico 88240

Bureau of Land Management
Henryetta Price
620 E Greene Street
Carlsbad, New Mexico 88220

SUBJECT: SOIL REMEDIATION WORK PLAN FOR THE INCIDENT AT THE GC Federal #031, LEA COUNTY,
NEW MEXICO

Ms. Yu:

On behalf of COG Operating, LLC, HRL Compliance Solutions, Inc (HRL) has prepared this work plan that describes the assessment, initial characterization, and proposed remediation for a release associated with the GC Federal #031 release. The site is in Unit N, SECTION 20, TOWNSHIP 17S, RANGE 32E, NMPM, Lea County, New Mexico, on Federal land. Figure 1 illustrates the location and surrounding area.

Table 1 below, summarizes information regarding the release.

APPROVED

By Olivia Yu at 12:52 pm, Apr 24, 2018

NMOCD approves of the delineation completed for 1RP-4629. See email correspondence regarding conditions for proposed remediation plan.



Table 1: Release Information and Site Ranking

Name	GC Federal #031
Company	COG Operating, LLC
RP Number	1RP-4629
API Number	30-025-39266
Location	32.81433889, -103.7909611
Estimated Date of Release	3/1/2017
Date Reported to NMOCD	3/3/2017
Land Owner	Federal
Reported to	OCD/BLM
Source of Release	Hole in a pumping tee
Released Material	Oil and Produced Water
Released Volume	5 bbls oil, 5 bbls produced water
Recovered Volume	4.5 bbls oil, 4.5 bbls produced water
Net Release Volume	0.5 bbls oil, 0.5 bbls water
Nearest Waterway	9.1 miles to White Lake
Depth to Groundwater	175 feet bgs
Nearest Domestic Water Source	> 1 mile
NMOCD Ranking	0
Response Date	3/2/2018

1.0 Background

The release at the GC Federal #031 was caused due to equipment failure from a hole that occurred on a fitting (nipple) connected to the pumping tee as outlined in the NMOCD C-141 report (Appendix A). All released material remained on location within the perimeter of the well pad, isolated around the wellhead. A vacuum truck was used to remove all freestanding liquid. Samples were collected from the impacted area to delineate the vertical and horizontal extent of impacts.

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 3.3 miles south-southwest of Maljamar, with an elevation of approximately 4595 feet above sea level. After evaluation of the site using the Chevron Texaco Groundwater Trend Map (2005), depth to groundwater was estimated at 175 feet below ground surface (bgs).

Recommended Remediation Action Levels (RRALs) are determined by the site ranking according to the NMOCD *Guidelines for Remediation of Leaks, Spills, and Releases* (1993). Table 2 presents the remediation standards and the site ranking for this location. Justification for this site ranking is found in Appendix B.

Table 2: Remediation Standards



Soil Remediation Standards	0 to 9	10 to 19	>19
Benzene	10 PPM	10 PPM	10 PPM
BTEX	50 PPM	50 PPM	50 PPM
TPH	5000 PPM	1000 PPM	100 PPM

Depth to Groundwater	NMOCD Numeric Rank
< 50 BGS = 20	0
50' to 99' = 10	
>100' = 0	
Distance to Nearest Surface Water	NMOCD Numeric Rank
< 200' = 20	
200' - 1000' = 10	
>1000' = 0	0
Well Head Protection	NMOCD Numeric Rank
<1000' (or <200' domestic) = 20	
> 1000' = 0	0
Total Site Ranking	0

3.0 Release Characterization

Upon receiving clearance from the underground utility locate (811) on March 15, 2017, COG field personnel assessed the impacted area. Samples were collected on 3/15/2017 to characterize the extent of impacts and calculate a volume of soil to be excavated for disposal. All samples were collected and analyzed at a Nationally Environmental Laboratory Accreditation Program (NELAP) laboratory and in accordance with NMOCD soil sampling procedures. The samples were submitted to Xenco Laboratories for analyses including chlorides by Method 300.0, volatile organics (BTEX) by Method 8021B, and MRO, DRO, and GRO by EPA Method 8015D. Sample locations are depicted in Figure 2. All field screening and laboratory results are summarized in Table 3 with raw analytical reports included in Appendix C.

4.0 Soil Remediation Workplan

HRL will begin the excavation of the impacted soils, after approval from area utilities owners via 811 and NMOCD. HRL will oversee the excavation activities. Excavation will occur to a depth of 0.5 feet bgs at the West sample location where initial characterization samples indicated impacts were present. Excavation will occur to three (3) feet bgs at the T2 sample location as shown in Figure 2. Impacted soils will be stockpiled on location within a lined earthen berm containment cell prior to disposal. Confirmation samples will be collected from the excavation bottom and sidewalls of the sample site to be analyzed for total chlorides. It is anticipated that approximately 100 cubic yards of contaminated soil is to be excavated and disposed at an approved solid waste disposal facility. Clean native soils will be used to backfill the excavation and the impacted area may be recontoured to the surrounding area. The contaminated soil will be disposed of at an approved disposal facility.



5.0 Scope and Limitations

The scope of HRL's services consist of performing site characterization and remediation, verification of release stabilization, regulatory liaison, and preparation of this work plan. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact Jennifer Knowlton at 505-238-3588.

Submitted by:
HRL Compliance Solutions, Inc

Jennifer Knowlton
Regional Manager - Permian

Attachments:

Figure 1: Vicinity and Wellhead Protection Map

Figure 2: Site and Sample Location Map

Table 3: Summary of Sample Results

Appendix A: Form C141 Initial

Appendix B: NMOSE Well Report

Appendix C: Laboratory Analytical Reports



Figure 1:
Site Vicinity Map

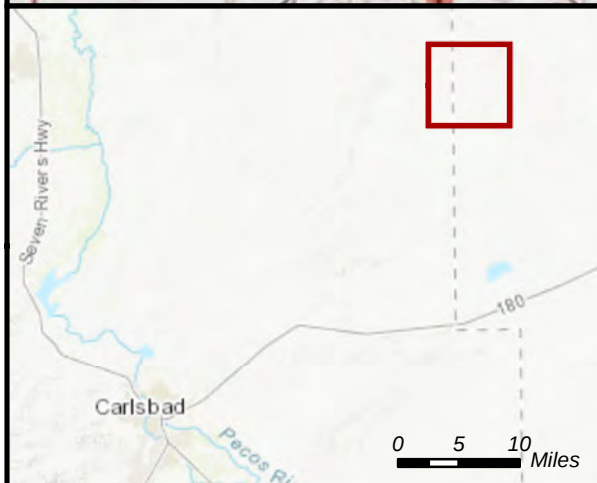
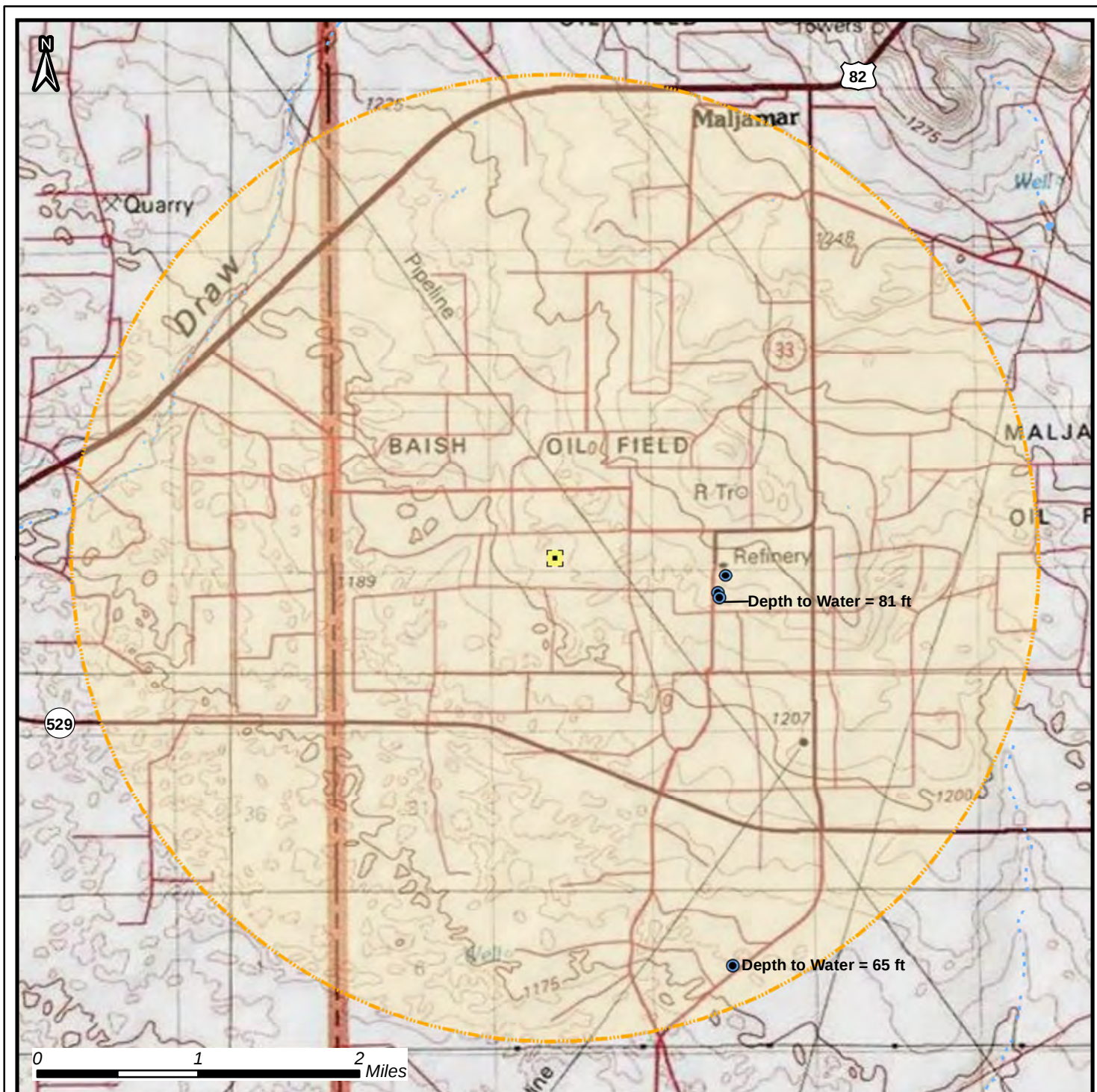




Figure 1: Location Map
GC Federal 31
 32.814356 -103.790757
 Section 20, Township 17 South, Range 32 East

Features	Hydrography
 GC Federal 31  Water Well  3 Mile Buffer	 Ephemeral Stream  Waterbody

DISCLAIMER: This representation and the Geographic Information System (GIS) used to create it are designed as a source of reference and not intended to replace official records and/or legal surveys. HCSL assumes no responsibility for any risks, dangers, or liabilities that may result from its use and makes no guarantees as to the quality or accuracy of the underlying data.



Author: E. Fought
 Revision: 0
 Date: 3/9/2018



Figure 2:
Site and Sample Location Map

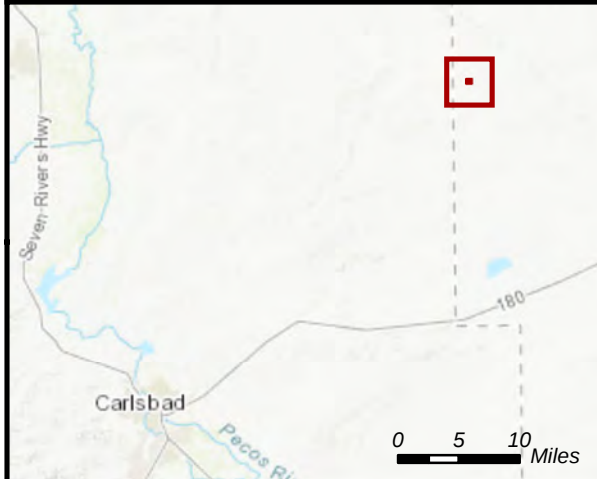
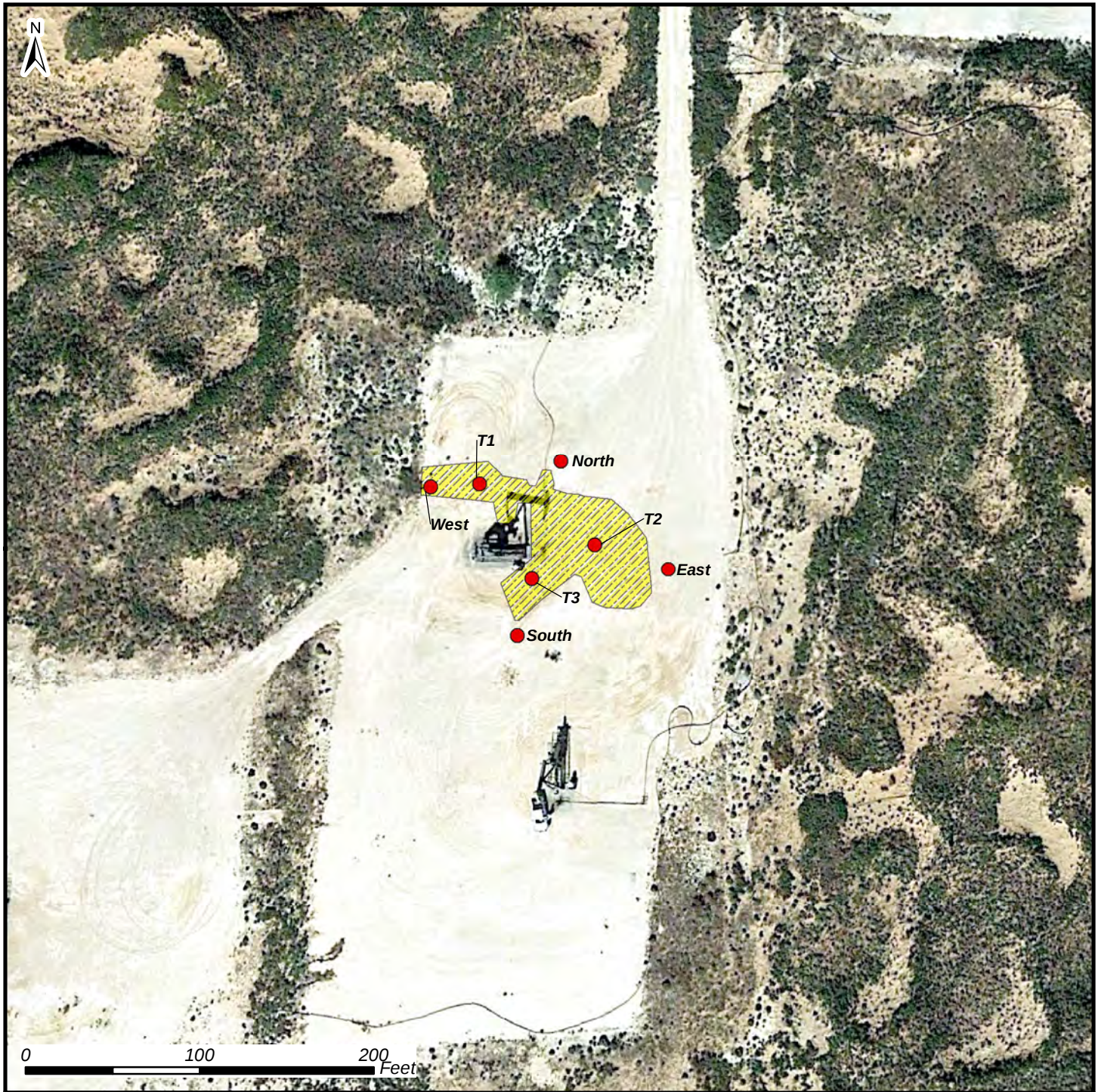


Figure 2: Site Location Map

GC Federal 31

32.814356 -103.790757

Section 20, Township 17 South, Range 32 East

Features

● Sample Location

■ Impacted Area

DISCLAIMER: This representation and the Geographic Information System (GIS) used to create it are designed as a source of reference and not intended to replace official records and/or legal surveys. HCSL assumes no responsibility for any risks, dangers, or liabilities that may result from its use and makes no guarantee as to the quality or accuracy of the underlying data.



Author: E. Fought

Revision: 0

Date: 3/19/2018



Table 3: Analytical Results Summary

SAMPLE LOCATION	SAMPLE DEPTH (bgs)	SAMPLE DATE	SOIL STATUS	8021B					8015M			300.0
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	Total TPH (mg/Kg)	CHLORIDE (mg/Kg)
NMOCD - Guidelines for Remediation of Leaks, Spills and Releases				10	NE	NE	NE	50	NE	NE	5,000	600
Vertical Delineation Sampling												
T1	Surface	3/15/2017	In-Situ	<0.00151	0.00201	0.00201	0.00201	0.00151	<15.0	26.5	26.5	19.9
T1	1'	3/15/2017	In-Situ	<0.00150	<0.00200	<0.00200	<0.00200	0.0015	<15.0	<15.0	<15.0	36.0
T1	2'	3/15/2017	In-Situ	<0.00148	<0.00198	<0.00198	<0.00198	<0.00148	<15.0	<15.0	<15.0	<9.82
T1	3'	3/15/2017	In-Situ	<0.00151	<0.00201	<0.00201	<0.00201	<0.00151	<15.0	<15.0	<15.0	69.8
T1	4'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	212
T1	6'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	264
T1	8'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	842
T1	10'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	670
T1	12'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	474
T1	14'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	788
T1	16'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	472
T2	Surface	3/15/2017	In-Situ	<0.00151	<0.00201	<0.00201	<0.00201	<.000151	<14.9	<14.9	<14.9	8,350
T2	1'	3/15/2017	In-Situ	<0.00149	<0.00199	<0.00199	<0.00199	<0.00149	<15.0	<15.0	<15.0	830
T2	2'	3/15/2017	In-Situ	<0.00150	<0.00200	<0.00200	<0.00200	<.000150	<14.9	<14.9	<14.9	3,020
T2	3'	3/15/2017	In-Situ	<0.00285	<0.00200	<0.00200	<0.00200	<0.00285	<15.0	<15.0	<15.0	42.0
T2	4'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	165



Table 3: Analytical Results Summary (continued)

SAMPLE LOCATION	SAMPLE DEPTH (bgs)	SAMPLE DATE	SOIL STATUS	8021B					8015M			300.0
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	Total TPH (mg/Kg)	CHLORIDE (mg/Kg)
NMOCD - Guidelines for Remediation of Leaks, Spills and Releases				10	NE	NE	NE	50	NE	NE	5,000	600
Vertical Delineation Sampling												
T2	6'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	<50.0
T2	8'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	23
T3	Surface	3/15/2017	In-Situ	<0.00267	<0.00356	<0.00356	<0.00356	<0.00267	<14.9	<14.9	<14.9	74.6
T3	1'	3/15/2017	In-Situ	<0.00150	<0.00200	<0.00200	<0.00200	<0.00150	<15.0	<15.0	<15.0	43.6
T3	2'	3/15/2017	In-Situ	<0.00149	<0.00198	<0.00198	<0.00198	<0.00149	<15.0	<15.0	<15.0	236
T3	3'	3/15/2017	In-Situ	<0.00148	<0.00198	<0.00198	<0.00198	<0.00148	<15.0	<15.0	<15.0	69.0
T3	4'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	29.6
T3	6'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	<10.0
T3	8'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	20.5
North	Surface	3/15/2017	In-Situ	<0.00148	<0.00198	<0.00198	<0.00198	<0.00148	<15.0	<15.0	<15.0	279.0
North	1'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	139.0
North	2'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	158
North	3'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	300.0



Table 3: Analytical Results Summary (continued)

SAMPLE LOCATION	SAMPLE DEPTH (bgs)	SAMPLE DATE	SOIL STATUS	8021B					8015M			300.0
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYLBENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO (mg/Kg)	DRO (mg/Kg)	Total TPH (mg/Kg)	CHLORIDE (mg/Kg)
				10	NE	NE	NE	50	NE	NE	5,000	600
Vertical Delineation Sampling												
South	Surface	3/15/2017	In-Situ	<0.00151	<0.00201	<0.00201	<0.00201	<0.00151	<15.0	122	122	98.0
South	1'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	12.9
South	2'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	29
South	3'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	13.9
East	Surface	3/15/2017	In-Situ	<0.00267	<0.00356	<0.00356	<0.00356	<0.00267	<15.0	<15.0	<15.0	63.7
East	1'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	61.1
East	2'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	62
East	3'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	124.0
West	Surface	3/15/2017	In-Situ	<0.00274	<0.00365	<0.00356	<0.00356	<0.00274	<15.0	29.4	29.4	5,090.0
West	1'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	59.9
West	2'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	<9.92
West	3'	3/15/2017	In-Situ	-	-	-	-	-	-	-	-	<9.96



Appendix A: Form C141 Initial

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	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077
Facility Name: GC FEDERAL #031	Facility Type: Wellhead

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-025-39266
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LOCATION OF RELEASE

Unit Letter N	Section 20	Township 17S	Range 32E	Feet from the 525	North/South Line South	Feet from the 1960	East/West Line West	County Lea
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32.8142929,-103.7908478

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 5bbls Oil & 5bbls PW	Volume Recovered: 4.5bbls Oil & 4.5bbls PW
Source of Release: Wellhead	Date and Hour of Occurrence: March 01, 2017 Unknown	Date and Hour of Discovery: March 01, 2017 11:00AM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

This release occurred due to a hole in a nipple on the pumping tee. The damaged nipple was replaced with a new nipple.

Describe Area Affected and Cleanup Action Taken.

This release remained on location around the wellhead. 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: 	OIL CONSERVATION DIVISION		
Printed Name: Aaron Lieb	Approved by Environmental Specialist:		
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:	
E-mail Address: alieb@concho.com	Conditions of Approval:		Attached ☐
Date: March 01, 2017	Phone: 575-748-1553		

* Attach Additional Sheets If Necessary



Appendix B: NMOSE Well Report



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	Distance	Depth Well	Depth Water	Water Column
RA 10175			LE	2	1	28	17S	32E		614814	3631005*	1667	158		
RA 12020 POD1			LE	2	2	1	28	17S	32E	614828	3630954	1692	120	81	39
RA 12042 POD1			LE	2	2	1	28	17S	32E	614891	3631181	1716	400		
CP 00566 POD1	CP	LE	4	4	1	04	18S	32E		614960	3627280*	4442	133	65	68

Average Depth to Water: **73 feet**

Minimum Depth: **65 feet**

Maximum Depth: **81 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 613182.83

Northing (Y): 3631352

Radius: 4828

*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: Laboratory Analytical Reports



Certificate of Analysis Summary 549470

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 06-APR-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	549470-001	549470-002	549470-003	549470-004	549470-005	549470-006
	<i>Field Id:</i>	T1 - Surface	T1 - 1'	T1 - 2'	T1 - 3'	T1 - 4'	T1 - 6'
	<i>Depth:</i>		1 ft	2 ft	3 ft	4 ft	6 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-15-17 10:00	Mar-15-17 10:05	Mar-15-17 10:15	Mar-15-17 10:20	Mar-15-17 10:30	Mar-15-17 10:35
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-29-17 08:25	Mar-29-17 08:25	Mar-29-17 08:25	Mar-29-17 10:01		
	<i>Analyzed:</i>	Mar-29-17 11:02	Mar-29-17 11:19	Mar-29-17 11:35	Mar-29-17 20:16		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00151 0.00151	<0.00150 0.00150	<0.00148 0.00148	<0.00151 0.00151		
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201		
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201		
m,p-Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201		
o-Xylene		<0.00302 0.00302	<0.00301 0.00301	<0.00296 0.00296	<0.00302 0.00302		
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201		
Total BTEX		<0.00151 0.00151	<0.00150 0.00150	<0.00148 0.00148	<0.00151 0.00151		
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	<i>Extracted:</i>	Apr-01-17 16:00	Apr-01-17 16:00	Apr-01-17 16:00	Apr-01-17 16:00	Apr-01-17 16:00	Apr-01-17 16:00
	<i>Analyzed:</i>	Apr-03-17 01:31	Apr-03-17 01:59	Apr-03-17 02:09	Apr-03-17 02:18	Apr-03-17 02:27	Apr-03-17 02:37
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		19.9 9.90	36.0 9.98	<9.82 9.82	69.8 9.92	212 99.0	264 100
TPH By SW8015 Mod	<i>Extracted:</i>	Mar-27-17 11:10	Mar-27-17 11:10	Mar-27-17 11:10	Mar-27-17 11:10		
	<i>Analyzed:</i>	Mar-27-17 15:07	Mar-27-17 15:29	Mar-27-17 15:51	Mar-27-17 16:12		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
C10-C28 Diesel Range Organics		26.5 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Total TPH		26.5 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 549470

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 06-APR-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	549470-007	549470-008	549470-009	549470-010	549470-011	549470-012
	<i>Field Id:</i>	T1 - 8'	T1 - 10'	T1 - 12'	T1 - 14'	T1 - 16'	T2 - Surface
	<i>Depth:</i>	8 ft	10 ft	12 ft	14 ft	16 ft	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-15-17 10:45	Mar-15-17 10:50	Mar-15-17 10:55	Mar-15-17 10:57	Mar-15-17 11:00	Mar-15-17 11:05
BTEX by EPA 8021B	<i>Extracted:</i>						Mar-29-17 08:25
	<i>Analyzed:</i>						Mar-29-17 12:27
	<i>Units/RL:</i>						mg/kg RL
Benzene							<0.00151 0.00151
Toluene							<0.00201 0.00201
Ethylbenzene							<0.00201 0.00201
m,p-Xylenes							<0.00201 0.00201
o-Xylene							<0.00302 0.00302
Total Xylenes							<0.00201 0.00201
Total BTEX							<0.00151 0.00151
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	<i>Extracted:</i>	Apr-01-17 16:00	Apr-01-17 16:00	Apr-01-17 16:00	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00
	<i>Analyzed:</i>	Apr-03-17 02:46	Apr-03-17 02:55	Apr-03-17 03:05	Apr-03-17 21:41	Apr-03-17 21:51	Apr-03-17 22:00
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		842 9.98	670 9.82	474 9.90	788 9.98	472 10.0	8350 D 100
TPH By SW8015 Mod	<i>Extracted:</i>						Mar-27-17 11:10
	<i>Analyzed:</i>						Mar-27-17 16:33
	<i>Units/RL:</i>						mg/kg RL
C6-C10 Gasoline Range Hydrocarbons							<14.9 14.9
C10-C28 Diesel Range Organics							<14.9 14.9
Total TPH							<14.9 14.9

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 549470

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 06-APR-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	549470-013	549470-014	549470-015	549470-016	549470-017	549470-018
	<i>Field Id:</i>	T2 - 1'	T2 - 2'	T2 - 3'	T2 - 4'	T2 - 6'	T2 - 8'
	<i>Depth:</i>	1 ft	2 ft	3 ft	4 ft	6 ft	8 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-15-17 11:07	Mar-15-17 11:10	Mar-15-17 11:15	Mar-15-17 11:18	Mar-15-17 11:20	Mar-15-17 11:22
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-29-17 10:01	Mar-29-17 10:01	Mar-31-17 10:15			
	<i>Analyzed:</i>	Mar-29-17 18:22	Mar-29-17 18:38	Mar-31-17 12:48			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00149 0.00149	<0.00150 0.00150	<0.00285 0.00285			
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00380 0.00380			
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00380 0.00380			
m,p-Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00380 0.00380			
o-Xylene		<0.00298 0.00298	<0.00301 0.00301	<0.00570 0.00570			
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00380 0.00380			
Total BTEX		<0.00149 0.00149	<0.00150 0.00150	<0.00285 0.00285			
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	<i>Extracted:</i>	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00
	<i>Analyzed:</i>	Apr-03-17 22:28	Apr-03-17 22:37	Apr-03-17 22:47	Apr-03-17 23:15	Apr-03-17 23:43	Apr-03-17 23:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		830 10.0	3020 D 100	42.0 10.0	165 10.0	<50.0 50.0	23.1 10.0
TPH By SW8015 Mod	<i>Extracted:</i>	Mar-27-17 11:10	Mar-27-17 11:10	Mar-27-17 11:10			
	<i>Analyzed:</i>	Mar-27-17 16:53	Mar-27-17 17:55	Mar-27-17 18:16			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0	<14.9 14.9	<15.0 15.0			
C10-C28 Diesel Range Organics		<15.0 15.0	<14.9 14.9	<15.0 15.0			
Total TPH		<15.0 15.0	<14.9 14.9	<15.0 15.0			

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 549470

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 06-APR-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	549470-019	549470-020	549470-021	549470-022	549470-023	549470-024
	Field Id:	T3 - Surface	T3 - 1'	T3 - 2'	T3 - 3'	T3 - 4'	T3 - 6'
	Depth:		1 ft	2 ft	3 ft	4 ft	6 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-15-17 11:25	Mar-15-17 11:30	Mar-15-17 11:35	Mar-15-17 11:40	Mar-15-17 11:45	Mar-15-17 11:50
BTEX by EPA 8021B	Extracted:	Mar-31-17 10:15	Mar-29-17 10:01	Mar-29-17 10:01	Mar-29-17 10:01		
	Analyzed:	Mar-31-17 16:31	Mar-29-17 19:27	Mar-29-17 19:44	Mar-29-17 20:00		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00267 0.00267	<0.00150 0.00150	<0.00149 0.00149	<0.00148 0.00148		
Toluene		<0.00356 0.00356	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198		
Ethylbenzene		<0.00356 0.00356	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198		
m,p-Xylenes		<0.00356 0.00356	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198		
o-Xylene		<0.00534 0.00534	<0.00301 0.00301	<0.00298 0.00298	<0.00296 0.00296		
Total Xylenes		<0.00356 0.00356	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198		
Total BTEX		<0.00267 0.00267	<0.00150 0.00150	<0.00149 0.00149	<0.00148 0.00148		
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	Extracted:	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00	Apr-03-17 18:00
	Analyzed:	Apr-04-17 00:01	Apr-04-17 00:11	Apr-04-17 00:39	Apr-04-17 01:07	Apr-04-17 01:16	Apr-04-17 01:26
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		74.6 10.0	43.6 10.0	236 10.0	69.0 10.0	29.6 10.0	<10.0 10.0
TPH By SW8015 Mod	Extracted:	Mar-27-17 11:10	Mar-27-17 11:10	Mar-27-17 11:10	Mar-27-17 11:10		
	Analyzed:	Mar-27-17 18:36	Mar-27-17 18:57	Mar-27-17 19:18	Mar-27-17 19:38		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
C6-C10 Gasoline Range Hydrocarbons		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0		
C10-C28 Diesel Range Organics		<14.9 14.9	<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		

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 549470

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 06-APR-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	549470-025					
	Field Id:	T3 - 8'					
	Depth:	8 ft					
	Matrix:	SOIL					
	Sampled:	Mar-15-17 11:55					
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	Extracted:	Apr-03-17 18:00					
	Analyzed:	Apr-04-17 01:35					
	Units/RL:	mg/kg RL					
Chloride		20.5 10.0					

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Kelsey Brooks
Project Manager

Analytical Report 549470

**for
COG Operating LLC**

Project Manager: Dakota Neel

GC Federal #31

06-APR-17

Collected By: Dakota Neel



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)



06-APR-17

Project Manager: **Dakota Neel**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **549470**

GC Federal #31

Project Address: Lea County NM

Dakota Neel:

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) 549470. 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. 549470 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks

Project Manager

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COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1 - Surface	S	03-15-17 10:00	N/A	549470-001
T1 - 1'	S	03-15-17 10:05	- 1 ft	549470-002
T1 - 2'	S	03-15-17 10:15	- 2 ft	549470-003
T1 - 3'	S	03-15-17 10:20	- 3 ft	549470-004
T1 - 4'	S	03-15-17 10:30	- 4 ft	549470-005
T1 - 6'	S	03-15-17 10:35	- 6 ft	549470-006
T1 - 8'	S	03-15-17 10:45	- 8 ft	549470-007
T1 - 10'	S	03-15-17 10:50	- 10 ft	549470-008
T1 - 12'	S	03-15-17 10:55	- 12 ft	549470-009
T1 - 14'	S	03-15-17 10:57	- 14 ft	549470-010
T1 - 16'	S	03-15-17 11:00	- 16 ft	549470-011
T2 - Surface	S	03-15-17 11:05	N/A	549470-012
T2 - 1'	S	03-15-17 11:07	- 1 ft	549470-013
T2 - 2'	S	03-15-17 11:10	- 2 ft	549470-014
T2 - 3'	S	03-15-17 11:15	- 3 ft	549470-015
T2 - 4'	S	03-15-17 11:18	- 4 ft	549470-016
T2 - 6'	S	03-15-17 11:20	- 6 ft	549470-017
T2 - 8'	S	03-15-17 11:22	- 8 ft	549470-018
T3 - Surface	S	03-15-17 11:25	N/A	549470-019
T3 - 1'	S	03-15-17 11:30	- 1 ft	549470-020
T3 - 2'	S	03-15-17 11:35	- 2 ft	549470-021
T3 - 3'	S	03-15-17 11:40	- 3 ft	549470-022
T3 - 4'	S	03-15-17 11:45	- 4 ft	549470-023
T3 - 6'	S	03-15-17 11:50	- 6 ft	549470-024
T3 - 8'	S	03-15-17 11:55	- 8 ft	549470-025



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: GC Federal #31

Project ID:

Work Order Number(s): 549470

Report Date: 06-APR-17

Date Received: 03/25/2017

Sample receipt non conformances and comments:

please email results to:

rgrubbs@concho.com rhaskell@concho.com alieb@concho.com

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3013625 BTEX by EPA 8021B

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

Batch: LBA-3013779 BTEX by EPA 8021B

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

Batch: LBA-3013788 BTEX by EPA 8021B

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

Batch: LBA-3014002 Inorganic Anions by EPA 300/300.1

Lab Sample ID 549470-020 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride 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: 549470-010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020, -021, -022, -023, -024, -025.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T1 - Surface

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549470-001

Date Collected: 03.15.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 16.00

Basis: Wet Weight

Seq Number: 3013993

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.9	9.90	mg/kg	04.03.17 01.31		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.27.17 11.10

Basis: Wet Weight

Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 15.07	U	1
C10-C28 Diesel Range Organics	C10C28DRO	26.5	15.0	mg/kg	03.27.17 15.07		1
Total TPH	PHC635	26.5	15.0	mg/kg	03.27.17 15.07		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	03.27.17 15.07	
o-Terphenyl	84-15-1	94	%	70-135	03.27.17 15.07	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.29.17 08.25

Basis: Wet Weight

Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00151	0.00151	mg/kg	03.29.17 11.02	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.29.17 11.02	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.29.17 11.02	U	1
m,p-Xylenes	179601-23-1	<0.00201	0.00201	mg/kg	03.29.17 11.02	U	1
o-Xylene	95-47-6	<0.00302	0.00302	mg/kg	03.29.17 11.02	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.29.17 11.02	U	1
Total BTEX		<0.00151	0.00151	mg/kg	03.29.17 11.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	80-120	03.29.17 11.02	
1,4-Difluorobenzene	540-36-3	116	%	80-120	03.29.17 11.02	



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T1 - 1' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-002 Date Collected: 03.15.17 10.05 Sample Depth: 1 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.01.17 16.00 Basis: Wet Weight
Seq Number: 3013993 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	36.0	9.98	mg/kg	04.03.17 01.59		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 15.29	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 15.29	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 15.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	90	%	70-135	03.27.17 15.29		
o-Terphenyl	84-15-1	86	%	70-135	03.27.17 15.29		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 08.25 Basis: Wet Weight
Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00150	0.00150	mg/kg	03.29.17 11.19	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.29.17 11.19	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.29.17 11.19	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	03.29.17 11.19	U	1
o-Xylene	95-47-6	<0.00301	0.00301	mg/kg	03.29.17 11.19	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.29.17 11.19	U	1
Total BTEX		<0.00150	0.00150	mg/kg	03.29.17 11.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	87	%	80-120	03.29.17 11.19		
1,4-Difluorobenzene	540-36-3	93	%	80-120	03.29.17 11.19		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T1 - 2' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-003 Date Collected: 03.15.17 10.15 Sample Depth: 2 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.01.17 16.00 Basis: Wet Weight
Seq Number: 3013993 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.82	9.82	mg/kg	04.03.17 02.09	U	1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 15.51	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 15.51	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 15.51	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	89	%	70-135	03.27.17 15.51		
o-Terphenyl	84-15-1	86	%	70-135	03.27.17 15.51		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 08.25 Basis: Wet Weight
Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00148	0.00148	mg/kg	03.29.17 11.35	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.29.17 11.35	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.29.17 11.35	U	1
m,p-Xylenes	179601-23-1	<0.00198	0.00198	mg/kg	03.29.17 11.35	U	1
o-Xylene	95-47-6	<0.00296	0.00296	mg/kg	03.29.17 11.35	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.29.17 11.35	U	1
Total BTEX		<0.00148	0.00148	mg/kg	03.29.17 11.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	80-120	03.29.17 11.35		
1,4-Difluorobenzene	540-36-3	106	%	80-120	03.29.17 11.35		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T1 - 3' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-004 Date Collected: 03.15.17 10.20 Sample Depth: 3 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.01.17 16.00 Basis: Wet Weight
Seq Number: 3013993 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	69.8	9.92	mg/kg	04.03.17 02.18		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 16.12	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 16.12	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 16.12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	91	%	70-135	03.27.17 16.12		
o-Terphenyl	84-15-1	93	%	70-135	03.27.17 16.12		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 10.01 Basis: Wet Weight
Seq Number: 3013779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00151	0.00151	mg/kg	03.29.17 20.16	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.29.17 20.16	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.29.17 20.16	U	1
m,p-Xylenes	179601-23-1	<0.00201	0.00201	mg/kg	03.29.17 20.16	U	1
o-Xylene	95-47-6	<0.00302	0.00302	mg/kg	03.29.17 20.16	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.29.17 20.16	U	1
Total BTEX		<0.00151	0.00151	mg/kg	03.29.17 20.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	80-120	03.29.17 20.16		
1,4-Difluorobenzene	540-36-3	119	%	80-120	03.29.17 20.16		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T1 - 4'
Lab Sample Id: 549470-005

Matrix: Soil
Date Collected: 03.15.17 10.30

Date Received: 03.25.17 10.30
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013993

Date Prep: 04.01.17 16.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	212	99.0	mg/kg	04.03.17 02.27		10



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T1 - 6' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-006 Date Collected: 03.15.17 10.35 Sample Depth: 6 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.01.17 16.00 Basis: Wet Weight
Seq Number: 3013993 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	264	100	mg/kg	04.03.17 02.37		10



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T1 - 8'
Lab Sample Id: 549470-007

Matrix: Soil
Date Collected: 03.15.17 10.45

Date Received: 03.25.17 10.30
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013993

Date Prep: 04.01.17 16.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	842	9.98	mg/kg	04.03.17 02.46		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **T1 - 10'**
Lab Sample Id: 549470-008

Matrix: Soil
Date Collected: 03.15.17 10.50

Date Received: 03.25.17 10.30
Sample Depth: 10 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013993

Date Prep: 04.01.17 16.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	670	9.82	mg/kg	04.03.17 02.55		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T1 - 12'
Lab Sample Id: 549470-009

Matrix: Soil
Date Collected: 03.15.17 10.55

Date Received: 03.25.17 10.30
Sample Depth: 12 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 16.00

Basis: Wet Weight

Seq Number: 3013993

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	474	9.90	mg/kg	04.03.17 03.05		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T1 - 14'
Lab Sample Id: 549470-010

Matrix: Soil
Date Collected: 03.15.17 10.57

Date Received: 03.25.17 10.30
Sample Depth: 14 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.03.17 18.00

Basis: Wet Weight

Seq Number: 3014002

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	788	9.98	mg/kg	04.03.17 21.41		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T1 - 16'
Lab Sample Id: 549470-011

Matrix: Soil
Date Collected: 03.15.17 11.00

Date Received: 03.25.17 10.30
Sample Depth: 16 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.03.17 18.00

Basis: Wet Weight

Seq Number: 3014002

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	472	10.0	mg/kg	04.03.17 21.51		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T2 - Surface

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549470-012

Date Collected: 03.15.17 11.05

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.03.17 18.00

Basis: Wet Weight

Seq Number: 3014002

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8350	100	mg/kg	04.05.17 16.16	D	10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.27.17 11.10

Basis: Wet Weight

Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	03.27.17 16.33	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<14.9	14.9	mg/kg	03.27.17 16.33	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.27.17 16.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	95	%	70-135	03.27.17 16.33		
o-Terphenyl	84-15-1	99	%	70-135	03.27.17 16.33		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.29.17 08.25

Basis: Wet Weight

Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00151	0.00151	mg/kg	03.29.17 12.27	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.29.17 12.27	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.29.17 12.27	U	1
m,p-Xylenes	179601-23-1	<0.00201	0.00201	mg/kg	03.29.17 12.27	U	1
o-Xylene	95-47-6	<0.00302	0.00302	mg/kg	03.29.17 12.27	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.29.17 12.27	U	1
Total BTEX		<0.00151	0.00151	mg/kg	03.29.17 12.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	116	%	80-120	03.29.17 12.27		
4-Bromofluorobenzene	460-00-4	93	%	80-120	03.29.17 12.27		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T2 - 1' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-013 Date Collected: 03.15.17 11.07 Sample Depth: 1 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.03.17 18.00 Basis: Wet Weight
Seq Number: 3014002 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	830	10.0	mg/kg	04.03.17 22.28		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 16.53	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 16.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 16.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	93	%	70-135	03.27.17 16.53		
o-Terphenyl	84-15-1	94	%	70-135	03.27.17 16.53		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 10.01 Basis: Wet Weight
Seq Number: 3013779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00149	0.00149	mg/kg	03.29.17 18.22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.29.17 18.22	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.29.17 18.22	U	1
m,p-Xylenes	179601-23-1	<0.00199	0.00199	mg/kg	03.29.17 18.22	U	1
o-Xylene	95-47-6	<0.00298	0.00298	mg/kg	03.29.17 18.22	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.29.17 18.22	U	1
Total BTEX		<0.00149	0.00149	mg/kg	03.29.17 18.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	80-120	03.29.17 18.22		
4-Bromofluorobenzene	460-00-4	87	%	80-120	03.29.17 18.22		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T2 - 2' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-014 Date Collected: 03.15.17 11.10 Sample Depth: 2 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.03.17 18.00 Basis: Wet Weight
Seq Number: 3014002 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3020	100	mg/kg	04.05.17 16.25	D	10

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	03.27.17 17.55	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<14.9	14.9	mg/kg	03.27.17 17.55	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.27.17 17.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	95	%	70-135	03.27.17 17.55		
o-Terphenyl	84-15-1	94	%	70-135	03.27.17 17.55		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 10.01 Basis: Wet Weight
Seq Number: 3013779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00150	0.00150	mg/kg	03.29.17 18.38	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.29.17 18.38	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.29.17 18.38	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	03.29.17 18.38	U	1
o-Xylene	95-47-6	<0.00301	0.00301	mg/kg	03.29.17 18.38	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.29.17 18.38	U	1
Total BTEX		<0.00150	0.00150	mg/kg	03.29.17 18.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	03.29.17 18.38		
1,4-Difluorobenzene	540-36-3	99	%	80-120	03.29.17 18.38		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T2 - 3' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-015 Date Collected: 03.15.17 11.15 Sample Depth: 3 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.03.17 18.00 Basis: Wet Weight
Seq Number: 3014002 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	42.0	10.0	mg/kg	04.03.17 22.47		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 18.16	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 18.16	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 18.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	87	%	70-135	03.27.17 18.16		
o-Terphenyl	84-15-1	88	%	70-135	03.27.17 18.16		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.31.17 10.15 Basis: Wet Weight
Seq Number: 3013788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00285	0.00285	mg/kg	03.31.17 12.48	UK	1
Toluene	108-88-3	<0.00380	0.00380	mg/kg	03.31.17 12.48	UK	1
Ethylbenzene	100-41-4	<0.00380	0.00380	mg/kg	03.31.17 12.48	UK	1
m,p-Xylenes	179601-23-1	<0.00380	0.00380	mg/kg	03.31.17 12.48	UK	1
o-Xylene	95-47-6	<0.00570	0.00570	mg/kg	03.31.17 12.48	UK	1
Total Xylenes	1330-20-7	<0.00380	0.00380	mg/kg	03.31.17 12.48	UK	1
Total BTEX		<0.00285	0.00285	mg/kg	03.31.17 12.48	UK	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	118	%	80-120	03.31.17 12.48		
4-Bromofluorobenzene	460-00-4	105	%	80-120	03.31.17 12.48		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T2 - 4'
Lab Sample Id: 549470-016

Matrix: Soil
Date Collected: 03.15.17 11.18

Date Received: 03.25.17 10.30
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3014002

Date Prep: 04.03.17 18.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	165	10.0	mg/kg	04.03.17 23.15		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T2 - 6'
Lab Sample Id: 549470-017

Matrix: Soil
Date Collected: 03.15.17 11.20

Date Received: 03.25.17 10.30
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3014002

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<50.0	50.0	mg/kg	04.03.17 23.43	U	5



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T2 - 8'
Lab Sample Id: 549470-018

Matrix: Soil
Date Collected: 03.15.17 11.22

Date Received: 03.25.17 10.30
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3014002

Date Prep: 04.03.17 18.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.1	10.0	mg/kg	04.03.17 23.52		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T3 - Surface

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549470-019

Date Collected: 03.15.17 11.25

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.03.17 18.00

Basis: Wet Weight

Seq Number: 3014002

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	74.6	10.0	mg/kg	04.04.17 00.01		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.27.17 11.10

Basis: Wet Weight

Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	03.27.17 18.36	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<14.9	14.9	mg/kg	03.27.17 18.36	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.27.17 18.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	96	%	70-135	03.27.17 18.36		
o-Terphenyl	84-15-1	98	%	70-135	03.27.17 18.36		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.31.17 10.15

Basis: Wet Weight

Seq Number: 3013788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00267	0.00267	mg/kg	03.31.17 16.31	UK	1
Toluene	108-88-3	<0.00356	0.00356	mg/kg	03.31.17 16.31	UK	1
Ethylbenzene	100-41-4	<0.00356	0.00356	mg/kg	03.31.17 16.31	UK	1
m,p-Xylenes	179601-23-1	<0.00356	0.00356	mg/kg	03.31.17 16.31	UK	1
o-Xylene	95-47-6	<0.00534	0.00534	mg/kg	03.31.17 16.31	UK	1
Total Xylenes	1330-20-7	<0.00356	0.00356	mg/kg	03.31.17 16.31	UK	1
Total BTEX		<0.00267	0.00267	mg/kg	03.31.17 16.31	UK	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	80-120	03.31.17 16.31		
1,4-Difluorobenzene	540-36-3	98	%	80-120	03.31.17 16.31		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T3 - 1' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-020 Date Collected: 03.15.17 11.30 Sample Depth: 1 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.03.17 18.00 Basis: Wet Weight
Seq Number: 3014002 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	43.6	10.0	mg/kg	04.04.17 00.11		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 18.57	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 18.57	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 18.57	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	84	%	70-135	03.27.17 18.57		
o-Terphenyl	84-15-1	83	%	70-135	03.27.17 18.57		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 10.01 Basis: Wet Weight
Seq Number: 3013779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00150	0.00150	mg/kg	03.29.17 19.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.29.17 19.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.29.17 19.27	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	03.29.17 19.27	U	1
o-Xylene	95-47-6	<0.00301	0.00301	mg/kg	03.29.17 19.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.29.17 19.27	U	1
Total BTEX		<0.00150	0.00150	mg/kg	03.29.17 19.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	80-120	03.29.17 19.27		
1,4-Difluorobenzene	540-36-3	114	%	80-120	03.29.17 19.27		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T3 - 2' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-021 Date Collected: 03.15.17 11.35 Sample Depth: 2 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.03.17 18.00 Basis: Wet Weight
Seq Number: 3014002 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	236	10.0	mg/kg	04.04.17 00.39		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 19.18	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 19.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 19.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	98	%	70-135	03.27.17 19.18		
o-Terphenyl	84-15-1	93	%	70-135	03.27.17 19.18		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 10.01 Basis: Wet Weight
Seq Number: 3013779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00149	0.00149	mg/kg	03.29.17 19.44	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.29.17 19.44	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.29.17 19.44	U	1
m,p-Xylenes	179601-23-1	<0.00198	0.00198	mg/kg	03.29.17 19.44	U	1
o-Xylene	95-47-6	<0.00298	0.00298	mg/kg	03.29.17 19.44	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.29.17 19.44	U	1
Total BTEX		<0.00149	0.00149	mg/kg	03.29.17 19.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	80-120	03.29.17 19.44		
1,4-Difluorobenzene	540-36-3	106	%	80-120	03.29.17 19.44		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: T3 - 3' Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549470-022 Date Collected: 03.15.17 11.40 Sample Depth: 3 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.03.17 18.00 Basis: Wet Weight
Seq Number: 3014002 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	69.0	10.0	mg/kg	04.04.17 01.07		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 19.38	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 19.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 19.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	96	%	70-135	03.27.17 19.38		
o-Terphenyl	84-15-1	96	%	70-135	03.27.17 19.38		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 10.01 Basis: Wet Weight
Seq Number: 3013779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00148	0.00148	mg/kg	03.29.17 20.00	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.29.17 20.00	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.29.17 20.00	U	1
m,p-Xylenes	179601-23-1	<0.00198	0.00198	mg/kg	03.29.17 20.00	U	1
o-Xylene	95-47-6	<0.00296	0.00296	mg/kg	03.29.17 20.00	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.29.17 20.00	U	1
Total BTEX		<0.00148	0.00148	mg/kg	03.29.17 20.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	86	%	80-120	03.29.17 20.00		
1,4-Difluorobenzene	540-36-3	105	%	80-120	03.29.17 20.00		



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T3 - 4'
Lab Sample Id: 549470-023

Matrix: Soil
Date Collected: 03.15.17 11.45

Date Received: 03.25.17 10.30
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3014002

Date Prep: 04.03.17 18.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.6	10.0	mg/kg	04.04.17 01.16		1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T3 - 6'
Lab Sample Id: 549470-024

Matrix: Soil
Date Collected: 03.15.17 11.50

Date Received: 03.25.17 10.30
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.03.17 18.00

Basis: Wet Weight

Seq Number: 3014002

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	04.04.17 01.26	U	1



Certificate of Analytical Results 549470



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: T3 - 8'
Lab Sample Id: 549470-025

Matrix: Soil
Date Collected: 03.15.17 11.55

Date Received: 03.25.17 10.30
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3014002

Date Prep: 04.03.17 18.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.5	10.0	mg/kg	04.04.17 01.35		1

- 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 **SQL** 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
GC Federal #31

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013993

Matrix: Solid

Prep Method: E300P

MB Sample Id: 722493-1-BLK

LCS Sample Id: 722493-1-BKS

Date Prep: 04.01.17

LCSD Sample Id: 722493-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<1.00	10.0	10.0	100	10.0	100	80-120	0	20	mg/kg	04.03.17 00:16	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014002

Matrix: Solid

Prep Method: E300P

MB Sample Id: 722515-1-BLK

LCS Sample Id: 722515-1-BKS

Date Prep: 04.03.17

LCSD Sample Id: 722515-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<2.00	20.0	20.2	101	19.8	99	80-120	2	20	mg/kg	04.03.17 21:23	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013993

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549470-009

MS Sample Id: 549470-009 S

Date Prep: 04.01.17

MSD Sample Id: 549470-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	474	99.0	565	92	564	91	80-120	0	20	mg/kg	04.03.17 03:14	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013993

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549476-001

MS Sample Id: 549476-001 S

Date Prep: 04.01.17

MSD Sample Id: 549476-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9560	99.4	9370	0	9370	0	80-120	0	20	mg/kg	04.03.17 00:45	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014002

Matrix: Solid

Prep Method: E300P

Parent Sample Id: 549470-012

MS Sample Id: 549470-012 S

Date Prep: 04.03.17

MSD Sample Id: 549470-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8090	100	7970	0	7980	0	80-120	0	20	mg/kg	04.03.17 22:09	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014002

Matrix: Solid

Prep Method: E300P

Parent Sample Id: 549470-020

MS Sample Id: 549470-020 S

Date Prep: 04.03.17

MSD Sample Id: 549470-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.6	100	148	104	147	103	80-120	1	20	mg/kg	04.04.17 00:20	



QC Summary 549470

COG Operating LLC GC Federal #31

Analytical Method: TPH By SW8015 Mod

Seq Number: 3013502

MB Sample Id: 722215-1-BLK

Matrix: Solid

LCS Sample Id: 722215-1-BKS

Prep Method: TX1005P

Date Prep: 03.27.17

LCSD Sample Id: 722215-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	952	95	989	99	70-135	4	35	mg/kg	03.27.17 12:14	
C10-C28 Diesel Range Organics	<15.0	1000	960	96	992	99	70-135	3	35	mg/kg	03.27.17 12:14	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	101		97		113		70-135	%	03.27.17 12:14			
o-Terphenyl	105		95		113		70-135	%	03.27.17 12:14			

Analytical Method: TPH By SW8015 Mod

Seq Number: 3013502

Parent Sample Id: 549469-001

Matrix: Soil

MS Sample Id: 549469-001 S

Prep Method: TX1005P

Date Prep: 03.27.17

MSD Sample Id: 549469-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	998	984	99	959	96	70-135	3	35	mg/kg	03.27.17 13:15	
C10-C28 Diesel Range Organics	<15.0	998	1000	100	997	100	70-135	0	35	mg/kg	03.27.17 13:15	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			105		100		70-135	%	03.27.17 13:15			
o-Terphenyl			101		96		70-135	%	03.27.17 13:15			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013625

MB Sample Id: 722271-1-BLK

Matrix: Solid

LCS Sample Id: 722271-1-BKS

Prep Method: SW5030B

Date Prep: 03.29.17

LCSD Sample Id: 722271-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00152	0.101	0.102	101	0.108	107	70-130	6	35	mg/kg	03.29.17 13:41	
Toluene	<0.00202	0.101	0.107	106	0.117	116	70-130	9	35	mg/kg	03.29.17 13:41	
Ethylbenzene	<0.00202	0.101	0.112	111	0.120	119	71-129	7	35	mg/kg	03.29.17 13:41	
m,p-Xylenes	<0.00202	0.202	0.222	110	0.236	116	70-135	6	35	mg/kg	03.29.17 13:41	
o-Xylene	<0.00303	0.101	0.114	113	0.123	122	71-133	8	35	mg/kg	03.29.17 13:41	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	118		119		109		80-120	%	03.29.17 13:41			
4-Bromofluorobenzene	97		105		98		80-120	%	03.29.17 13:41			

COG Operating LLC
GC Federal #31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013779

MB Sample Id: 722354-1-BLK

Matrix: Solid

LCS Sample Id: 722354-1-BKS

Prep Method: SW5030B

Date Prep: 03.29.17

LCSD Sample Id: 722354-1-BSD

Parameter	MB	Spike	LCS	LCS	LCSD	LCSD	Limits	%RPD	RPD	Units	Analysis	Flag
	Result	Amount	Result	%Rec	Result	%Rec			Limit	Date		
Benzene	<0.00149	0.0992	0.0890	90	0.0816	82	70-130	9	35	mg/kg	03.29.17 16:43	
Toluene	<0.00198	0.0992	0.0973	98	0.0886	89	70-130	9	35	mg/kg	03.29.17 16:43	
Ethylbenzene	<0.00198	0.0992	0.104	105	0.0946	95	71-129	9	35	mg/kg	03.29.17 16:43	
m,p-Xylenes	<0.00198	0.198	0.202	102	0.185	93	70-135	9	35	mg/kg	03.29.17 16:43	
o-Xylene	<0.00298	0.0992	0.106	107	0.0944	95	71-133	12	35	mg/kg	03.29.17 16:43	
Surrogate	MB	MB	LCS	LCS	LCSD	LCSD	Limits			Units	Analysis	
	%Rec	Flag	%Rec	Flag	%Rec	Flag					Date	
1,4-Difluorobenzene	109		99		88		80-120			%	03.29.17 16:43	
4-Bromofluorobenzene	93		88		92		80-120			%	03.29.17 16:43	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013788

MB Sample Id: 722377-1-BLK

Matrix: Solid

LCS Sample Id: 722377-1-BKS

Prep Method: SW5030B

Date Prep: 03.31.17

LCSD Sample Id: 722377-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00149	0.0996	0.0849	85	0.0744	75	70-130	13	35	mg/kg	03.31.17 08:26	
Toluene	<0.00199	0.0996	0.0930	93	0.0802	81	70-130	15	35	mg/kg	03.31.17 08:26	
Ethylbenzene	<0.00199	0.0996	0.0961	96	0.0870	88	71-129	10	35	mg/kg	03.31.17 08:26	
m,p-Xylenes	<0.00199	0.199	0.189	95	0.170	86	70-135	11	35	mg/kg	03.31.17 08:26	
o-Xylene	<0.00299	0.0996	0.102	102	0.0906	92	71-133	12	35	mg/kg	03.31.17 08:26	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	111		117		94		80-120			%	03.31.17 08:26	
4-Bromofluorobenzene	97		94		84		80-120			%	03.31.17 08:26	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013788

Parent Sample Id: 549474-005

Matrix: Soil

MS Sample Id: 549474-005 S

Prep Method: SW5030B

Date Prep: 03.31.17

MSD Sample Id: 549474-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00151	0.101	0.0771	76	0.0705	71	70-130	9	35	mg/kg	03.31.17 08:59	
Toluene	<0.00202	0.101	0.0786	78	0.0709	71	70-130	10	35	mg/kg	03.31.17 08:59	
Ethylbenzene	<0.00202	0.101	0.0797	79	0.0718	72	71-129	10	35	mg/kg	03.31.17 08:59	
m,p-Xylenes	<0.00202	0.202	0.155	77	0.141	71	70-135	9	35	mg/kg	03.31.17 08:59	
o-Xylene	<0.00302	0.101	0.0802	79	0.0706	71	71-133	13	35	mg/kg	03.31.17 08:59	
Surrogate			MS %Rec	MS Flag		MSD %Rec	MSD Flag	Limits		Units	Analysis Date	
1,4-Difluorobenzene			109			95		80-120		%	03.31.17 08:59	
4-Bromofluorobenzene			93			118		80-120		%	03.31.17 08:59	



QC Summary 549470

COG Operating LLC GC Federal #31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013625

Parent Sample Id: 549265-014

Matrix: Soil

MS Sample Id: 549265-014 S

Prep Method: SW5030B

Date Prep: 03.29.17

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Benzene	<0.00267	0.178	0.134	75	70-130	mg/kg	03.29.17 14:14	
Toluene	<0.00356	0.178	0.137	77	70-130	mg/kg	03.29.17 14:14	
Ethylbenzene	<0.00356	0.178	0.136	76	71-129	mg/kg	03.29.17 14:14	
m,p-Xylenes	<0.00356	0.356	0.265	74	70-135	mg/kg	03.29.17 14:14	
o-Xylene	<0.00534	0.178	0.134	75	71-133	mg/kg	03.29.17 14:14	

Surrogate	MS %Rec	MS Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		80-120	%	03.29.17 14:14
4-Bromofluorobenzene	107		80-120	%	03.29.17 14:14

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013779

Parent Sample Id: 549470-014

Matrix: Soil

MS Sample Id: 549470-014 S

Prep Method: SW5030B

Date Prep: 03.29.17

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Benzene	<0.00149	0.0996	0.0725	73	70-130	mg/kg	03.29.17 17:16	
Toluene	<0.00199	0.0996	0.0789	79	70-130	mg/kg	03.29.17 17:16	
Ethylbenzene	<0.00199	0.0996	0.0828	83	71-129	mg/kg	03.29.17 17:16	
m,p-Xylenes	<0.00199	0.199	0.160	80	70-135	mg/kg	03.29.17 17:16	
o-Xylene	<0.00299	0.0996	0.0858	86	71-133	mg/kg	03.29.17 17:16	

Surrogate	MS %Rec	MS Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	114		80-120	%	03.29.17 17:16
4-Bromofluorobenzene	98		80-120	%	03.29.17 17:16



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)

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Xenco Quote #

Xenco Job #

549470

Matrix Codes

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

Project Information

Client / Reporting Information
Company Name / Branch:
COG Operating LLC
Company Address:
2407 PECOS Avenue Artesia NM 88210
Email:
dnee2@concho.com alleb@concho.com thaskel@concho.com
Project Contact: Dakota Neel
Samplers Name: Dakota Neel

Project Name/Number:
GC Federal #31
Project Location:
Lea County, NM
Invoice To: COG Operating LLC
Attn: Robert McNeill
600 W. Illinois
Midland TX 79701
PO Number:

Collection

No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Number of preserved bottles
1	T1 - 14'	14'	3/16/17	10:57 AM	S	1									
2	T1 - 16'	16'		11:00 AM	S	1									
3	T2 - Surface	Surface		11:05 AM	S	1									
4	T2 - 1'	1'		11:07 AM	S	1									
5	T2 - 2'	2'		11:10 AM	S	1									
6	T2 - 3'	3'		11:15 AM	S	1									
7	T2 - 4'	4'		11:18 AM	S	1									
8	T2 - 6'	6'		11:20 AM	S	1									
9	T2 - 8'	8'		11:22 AM	S	1									
10															

Data Deliverable Information

Notes:

Turnaround Time (Business days)

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:

Relinquished By:

Date Time:

Received By:

Received By:

Relinquished By:

Date Time:

Received By:

Received By:

Date Time:

Received By:

Relinquished by:

Relinquished By:

Date Time:

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Relinquished by:

Relinquished By:

Date Time:

Received By:

Received By:

Relinquished By:

Date Time:

Received By:

Received By:

Date Time:

Received By:

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such 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 by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

Setting the Standard since 1990

Stafford, Texas (281-240-4200)

Dallas Texas (214-902-0300)

San Antonio, Texas (210-509-3334)

Midland, Texas (432-704-5251)

www.xenco.com

Phoenix, Arizona (480-355-0900)

Xenco Quote #

Xenco Job #

549470

Matrix Codes

W = Water

S = Soil/Sed/Solid

GW = Ground water
DW = Drinking Water

P = Product

SW = Surface water
SL = Sludge

OW = Ocean/Sea Water

W1 = w1ps
O = Oil

WW = Waste Water

A = Air

Field Comments

[illegible]



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 03/25/2017 10:30:00 AM

Work Order #: 549470

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)?	1.9
#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
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by: Jessica Kramer
Jessica Kramer

Date: 03/27/2017

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks

Date: 03/27/2017



Certificate of Analysis Summary 549469

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County, NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 04-APR-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	549469-001	549469-002	549469-003	549469-004	549469-005	549469-006
	<i>Field Id:</i>	North - Surface	North - 1'	North - 2'	North - 3'	South - Surface	South - 1'
	<i>Depth:</i>		1 ft	2 ft	3 ft		1 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-15-17 12:00	Mar-15-17 12:05	Mar-15-17 12:05	Mar-15-17 12:10	Mar-15-17 12:15	Mar-15-17 12:20
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-29-17 08:25				Mar-29-17 08:25	
	<i>Analyzed:</i>	Mar-29-17 09:53				Mar-29-17 10:10	
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	
Benzene		<0.00148 0.00148				<0.00151 0.00151	
Toluene		<0.00198 0.00198				<0.00201 0.00201	
Ethylbenzene		<0.00198 0.00198				<0.00201 0.00201	
m,p-Xylenes		<0.00198 0.00198				<0.00201 0.00201	
o-Xylene		<0.00296 0.00296				<0.00301 0.00301	
Total Xylenes		<0.00198 0.00198				<0.00201 0.00201	
Total BTEX		<0.00148 0.00148				<0.00151 0.00151	
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	<i>Extracted:</i>	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14
	<i>Analyzed:</i>	Apr-02-17 12:26	Apr-02-17 12:35	Apr-02-17 12:45	Apr-02-17 12:54	Apr-02-17 13:03	Apr-02-17 13:13
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		279 9.98	139 9.82	158 9.75	300 9.65	98.0 9.96	12.9 9.94
TPH By SW8015 Mod	<i>Extracted:</i>	Mar-27-17 11:10				Mar-27-17 11:10	
	<i>Analyzed:</i>	Mar-27-17 12:55				Mar-27-17 14:01	
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0				<15.0 15.0	
C10-C28 Diesel Range Organics		<15.0 15.0				122 15.0	
Total TPH		<15.0 15.0				122 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 549469

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County, NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 04-APR-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	549469-007	549469-008	549469-009	549469-010	549469-011	549469-012
	Field Id:	South - 2'	South - 3'	East - Surface	East - 1'	East - 2'	East - 3'
	Depth:	2 ft	3 ft		1 ft	2 ft	3 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Mar-15-17 12:25	Mar-15-17 12:25	Mar-15-17 12:35	Mar-15-17 12:35	Mar-15-17 12:35	Mar-15-17 12:35
BTEX by EPA 8021B		Extracted:		Mar-29-17 08:25			
		Analyzed:		Mar-29-17 13:48			
		Units/RL:		mg/kg RL			
Benzene				<0.00267 0.00267			
Toluene				<0.00356 0.00356			
Ethylbenzene				<0.00356 0.00356			
m,p-Xylenes				<0.00356 0.00356			
o-Xylene				<0.00534 0.00534			
Total Xylenes				<0.00356 0.00356			
Total BTEX				<0.00267 0.00267			
Inorganic Anions by EPA 300/300.1 SUB: TX104704215		Extracted:	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14
		Analyzed:	Apr-02-17 13:22	Apr-02-17 13:50	Apr-02-17 14:18	Apr-02-17 14:28	Apr-02-17 14:37
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride			29.4 9.90	13.9 9.88	63.7 9.80	61.1 9.88	61.6 9.82
TPH By SW8015 Mod		Extracted:			Mar-27-17 11:10		
		Analyzed:			Mar-27-17 14:22		
		Units/RL:			mg/kg RL		
C6-C10 Gasoline Range Hydrocarbons					<15.0 15.0		
C10-C28 Diesel Range Organics					<15.0 15.0		
Total TPH					<15.0 15.0		

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Version: 1.0%

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 549469

COG Operating LLC, Artesia, NM

Project Name: GC Federal #31



Project Id:

Contact: Dakota Neel

Project Location: Lea County, NM

Date Received in Lab: Sat Mar-25-17 10:30 am

Report Date: 04-APR-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	549469-013	549469-014	549469-015	549469-016		
	Field Id:	West - Surface	West - 1'	West - 2'	West - 3'		
	Depth:		1 ft	2 ft	3 ft		
	Matrix:	SOIL	SOIL	SOIL	SOIL		
	Sampled:	Mar-15-17 12:45	Mar-15-17 12:45	Mar-15-17 12:45	Mar-15-17 12:45		
BTEX by EPA 8021B	Extracted:	Mar-29-17 08:25					
	Analyzed:	Mar-29-17 14:21					
	Units/RL:	mg/kg RL					
Benzene		<0.00274 0.00274					
Toluene		<0.00365 0.00365					
Ethylbenzene		<0.00365 0.00365					
m,p-Xylenes		<0.00365 0.00365					
o-Xylene		<0.00547 0.00547					
Total Xylenes		<0.00365 0.00365					
Total BTEX		<0.00274 0.00274					
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	Extracted:	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14	Apr-01-17 14:14		
	Analyzed:	Apr-02-17 14:56	Apr-02-17 15:05	Apr-02-17 15:14	Apr-02-17 15:24		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		5090 D 100	59.9 9.94	<9.92 9.92	<9.96 9.96		
TPH By SW8015 Mod	Extracted:	Mar-27-17 11:10					
	Analyzed:	Mar-27-17 14:45					
	Units/RL:	mg/kg RL					
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0					
C10-C28 Diesel Range Organics		29.4 15.0					
Total TPH		29.4 15.0					

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Version: 1.0%

Kelsey Brooks
Project Manager

Analytical Report 549469

for
COG Operating LLC

Project Manager: Dakota Neel

GC Federal #31

04-APR-17

Collected By: Dakota Neel



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)



04-APR-17

Project Manager: **Dakota Neel**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **549469**

GC Federal #31

Project Address: Lea County, NM

Dakota Neel:

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) 549469. 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. 549469 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks

Project Manager

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

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Sample Cross Reference 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North - Surface	S	03-15-17 12:00	N/A	549469-001
North - 1'	S	03-15-17 12:05	- 1 ft	549469-002
North - 2'	S	03-15-17 12:05	- 2 ft	549469-003
North - 3'	S	03-15-17 12:10	- 3 ft	549469-004
South - Surface	S	03-15-17 12:15	N/A	549469-005
South - 1'	S	03-15-17 12:20	- 1 ft	549469-006
South - 2'	S	03-15-17 12:25	- 2 ft	549469-007
South - 3'	S	03-15-17 12:25	- 3 ft	549469-008
East - Surface	S	03-15-17 12:35	N/A	549469-009
East - 1'	S	03-15-17 12:35	- 1 ft	549469-010
East - 2'	S	03-15-17 12:35	- 2 ft	549469-011
East - 3'	S	03-15-17 12:35	- 3 ft	549469-012
West - Surface	S	03-15-17 12:45	N/A	549469-013
West - 1'	S	03-15-17 12:45	- 1 ft	549469-014
West - 2'	S	03-15-17 12:45	- 2 ft	549469-015
West - 3'	S	03-15-17 12:45	- 3 ft	549469-016



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: GC Federal #31

Project ID:

Work Order Number(s): 549469

Report Date: 04-APR-17

Date Received: 03/25/2017

Sample receipt non conformances and comments:

please email results to:

rgrubbs@concho.com rhaskell@concho.com alieb@concho.com

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3013625 BTEX by EPA 8021B

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



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: **North - Surface** Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549469-001 Date Collected: 03.15.17 12.00
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.01.17 14.14 Basis: Wet Weight
Seq Number: 3013954 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	279	9.98	mg/kg	04.02.17 12.26		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 12.55	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 12.55	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 12.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	97	%	70-135	03.27.17 12.55		
o-Terphenyl	84-15-1	100	%	70-135	03.27.17 12.55		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 08.25 Basis: Wet Weight
Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00148	0.00148	mg/kg	03.29.17 09.53	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.29.17 09.53	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.29.17 09.53	U	1
m,p-Xylenes	179601-23-1	<0.00198	0.00198	mg/kg	03.29.17 09.53	U	1
o-Xylene	95-47-6	<0.00296	0.00296	mg/kg	03.29.17 09.53	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.29.17 09.53	U	1
Total BTEX		<0.00148	0.00148	mg/kg	03.29.17 09.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	114	%	80-120	03.29.17 09.53		
4-Bromofluorobenzene	460-00-4	85	%	80-120	03.29.17 09.53		



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **North - 1'**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-002

Date Collected: 03.15.17 12.05

Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	139	9.82	mg/kg	04.02.17 12.35		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **North - 2'**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-003

Date Collected: 03.15.17 12.05

Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	158	9.75	mg/kg	04.02.17 12.45		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **North - 3'**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-004

Date Collected: 03.15.17 12.10

Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	300	9.65	mg/kg	04.02.17 12.54		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: **South - Surface** Matrix: Soil Date Received: 03.25.17 10.30
Lab Sample Id: 549469-005 Date Collected: 03.15.17 12.15
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: ALA % Moisture:
Analyst: ALA Date Prep: 04.01.17 14.14 Basis: Wet Weight
Seq Number: 3013954 SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	98.0	9.96	mg/kg	04.02.17 13.03		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 03.27.17 11.10 Basis: Wet Weight
Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 14.01	U	1
C10-C28 Diesel Range Organics	C10C28DRO	122	15.0	mg/kg	03.27.17 14.01		1
Total TPH	PHC635	122	15.0	mg/kg	03.27.17 14.01		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	03.27.17 14.01		
o-Terphenyl	84-15-1	102	%	70-135	03.27.17 14.01		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 03.29.17 08.25 Basis: Wet Weight
Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00151	0.00151	mg/kg	03.29.17 10.10	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.29.17 10.10	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.29.17 10.10	U	1
m,p-Xylenes	179601-23-1	<0.00201	0.00201	mg/kg	03.29.17 10.10	U	1
o-Xylene	95-47-6	<0.00301	0.00301	mg/kg	03.29.17 10.10	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.29.17 10.10	U	1
Total BTEX		<0.00151	0.00151	mg/kg	03.29.17 10.10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	116	%	80-120	03.29.17 10.10		
4-Bromofluorobenzene	460-00-4	97	%	80-120	03.29.17 10.10		



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **South - 1'**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-006

Date Collected: 03.15.17 12.20

Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.9	9.94	mg/kg	04.02.17 13.13		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **South - 2'**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-007

Date Collected: 03.15.17 12.25

Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.4	9.90	mg/kg	04.02.17 13.22		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **South - 3'**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-008

Date Collected: 03.15.17 12.25

Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.9	9.88	mg/kg	04.02.17 13.50		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: **East - Surface**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-009

Date Collected: 03.15.17 12.35

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	63.7	9.80	mg/kg	04.02.17 14.18		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.27.17 11.10

Basis: Wet Weight

Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 14.22	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	03.27.17 14.22	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.27.17 14.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	96	%	70-135	03.27.17 14.22		
o-Terphenyl	84-15-1	97	%	70-135	03.27.17 14.22		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.29.17 08.25

Basis: Wet Weight

Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00267	0.00267	mg/kg	03.29.17 13.48	U	1
Toluene	108-88-3	<0.00356	0.00356	mg/kg	03.29.17 13.48	U	1
Ethylbenzene	100-41-4	<0.00356	0.00356	mg/kg	03.29.17 13.48	U	1
m,p-Xylenes	179601-23-1	<0.00356	0.00356	mg/kg	03.29.17 13.48	U	1
o-Xylene	95-47-6	<0.00534	0.00534	mg/kg	03.29.17 13.48	U	1
Total Xylenes	1330-20-7	<0.00356	0.00356	mg/kg	03.29.17 13.48	U	1
Total BTEX		<0.00267	0.00267	mg/kg	03.29.17 13.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	93	%	80-120	03.29.17 13.48		
4-Bromofluorobenzene	460-00-4	83	%	80-120	03.29.17 13.48		



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **East - 1'**
Lab Sample Id: 549469-010

Matrix: Soil
Date Collected: 03.15.17 12.35

Date Received: 03.25.17 10.30
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013954

Date Prep: 04.01.17 14.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.1	9.88	mg/kg	04.02.17 14.28		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **East - 2'**
Lab Sample Id: 549469-011

Matrix: Soil
Date Collected: 03.15.17 12.35

Date Received: 03.25.17 10.30
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013954

Date Prep: 04.01.17 14.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.6	9.82	mg/kg	04.02.17 14.37		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **East - 3'**
Lab Sample Id: 549469-012

Matrix: Soil
Date Collected: 03.15.17 12.35

Date Received: 03.25.17 10.30
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013954

Date Prep: 04.01.17 14.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	124	9.80	mg/kg	04.02.17 14.46		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM GC Federal #31

Sample Id: **West - Surface**

Matrix: Soil

Date Received: 03.25.17 10.30

Lab Sample Id: 549469-013

Date Collected: 03.15.17 12.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5090	100	mg/kg	04.03.17 15.18	D	10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.27.17 11.10

Basis: Wet Weight

Seq Number: 3013502

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	03.27.17 14.45	U	1
C10-C28 Diesel Range Organics	C10C28DRO	29.4	15.0	mg/kg	03.27.17 14.45		1
Total TPH	PHC635	29.4	15.0	mg/kg	03.27.17 14.45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	03.27.17 14.45	
o-Terphenyl	84-15-1	98	%	70-135	03.27.17 14.45	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.29.17 08.25

Basis: Wet Weight

Seq Number: 3013625

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00274	0.00274	mg/kg	03.29.17 14.21	U	1
Toluene	108-88-3	<0.00365	0.00365	mg/kg	03.29.17 14.21	U	1
Ethylbenzene	100-41-4	<0.00365	0.00365	mg/kg	03.29.17 14.21	U	1
m,p-Xylenes	179601-23-1	<0.00365	0.00365	mg/kg	03.29.17 14.21	U	1
o-Xylene	95-47-6	<0.00547	0.00547	mg/kg	03.29.17 14.21	U	1
Total Xylenes	1330-20-7	<0.00365	0.00365	mg/kg	03.29.17 14.21	U	1
Total BTEX		<0.00274	0.00274	mg/kg	03.29.17 14.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84	%	80-120	03.29.17 14.21	
1,4-Difluorobenzene	540-36-3	106	%	80-120	03.29.17 14.21	



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **West - 1'**
Lab Sample Id: 549469-014

Matrix: Soil
Date Collected: 03.15.17 12.45

Date Received: 03.25.17 10.30
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: ALA

% Moisture:

Analyst: ALA

Date Prep: 04.01.17 14.14

Basis: Wet Weight

Seq Number: 3013954

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	59.9	9.94	mg/kg	04.02.17 15.05		1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **West - 2'**
Lab Sample Id: 549469-015

Matrix: Soil
Date Collected: 03.15.17 12.45

Date Received: 03.25.17 10.30
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013954

Date Prep: 04.01.17 14.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	04.02.17 15.14	U	1



Certificate of Analytical Results 549469



COG Operating LLC, Artesia, NM

GC Federal #31

Sample Id: **West - 3'**
Lab Sample Id: 549469-016

Matrix: Soil
Date Collected: 03.15.17 12.45

Date Received: 03.25.17 10.30
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: ALA

Analyst: ALA

Seq Number: 3013954

Date Prep: 04.01.17 14.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	04.02.17 15.24	U	1

- 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 **SQL** 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
GC Federal #31**Analytical Method: Inorganic Anions by EPA 300/300.1**

Seq Number: 3013954

Matrix: Solid

Prep Method: E300P

MB Sample Id: 722482-1-BLK

LCS Sample Id: 722482-1-BKS

Date Prep: 04.01.17

LCSD Sample Id: 722482-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<1.00	10.0	9.91	99	9.77	98	80-120	1	20	mg/kg	04.02.17 10:53	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013993

Matrix: Solid

Prep Method: E300P

MB Sample Id: 722493-1-BLK

LCS Sample Id: 722493-1-BKS

Date Prep: 04.01.17

LCSD Sample Id: 722493-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<1.00	10.0	10.0	100	10.0	100	80-120	0	20	mg/kg	04.03.17 00:16	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013954

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549418-001

MS Sample Id: 549418-001 S

Date Prep: 04.01.17

MSD Sample Id: 549418-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.96	99.6	104	104	103	103	80-120	1	20	mg/kg	04.02.17 11:21	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013954

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549469-007

MS Sample Id: 549469-007 S

Date Prep: 04.01.17

MSD Sample Id: 549469-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.4	99.0	132	104	131	103	80-120	1	20	mg/kg	04.02.17 13:32	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013993

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549470-009

MS Sample Id: 549470-009 S

Date Prep: 04.01.17

MSD Sample Id: 549470-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	474	99.0	565	92	564	91	80-120	0	20	mg/kg	04.03.17 03:14	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3013993

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549476-001

MS Sample Id: 549476-001 S

Date Prep: 04.01.17

MSD Sample Id: 549476-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9560	99.4	9370	0	9370	0	80-120	0	20	mg/kg	04.03.17 00:45	X



QC Summary 549469

COG Operating LLC GC Federal #31

Analytical Method: TPH By SW8015 Mod

Seq Number: 3013502

MB Sample Id: 722215-1-BLK

Matrix: Solid

LCS Sample Id: 722215-1-BKS

Prep Method: TX1005P

Date Prep: 03.27.17

LCSD Sample Id: 722215-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	952	95	989	99	70-135	4	35	mg/kg	03.27.17 12:14	
C10-C28 Diesel Range Organics	<15.0	1000	960	96	992	99	70-135	3	35	mg/kg	03.27.17 12:14	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	101		97		113		70-135	%	03.27.17 12:14			
o-Terphenyl	105		95		113		70-135	%	03.27.17 12:14			

Analytical Method: TPH By SW8015 Mod

Seq Number: 3013502

Parent Sample Id: 549469-001

Matrix: Soil

MS Sample Id: 549469-001 S

Prep Method: TX1005P

Date Prep: 03.27.17

MSD Sample Id: 549469-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	998	984	99	959	96	70-135	3	35	mg/kg	03.27.17 13:15	
C10-C28 Diesel Range Organics	<15.0	998	1000	100	997	100	70-135	0	35	mg/kg	03.27.17 13:15	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			105		100		70-135	%	03.27.17 13:15			
o-Terphenyl			101		96		70-135	%	03.27.17 13:15			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013625

MB Sample Id: 722271-1-BLK

Matrix: Solid

LCS Sample Id: 722271-1-BKS

Prep Method: SW5030B

Date Prep: 03.29.17

LCSD Sample Id: 722271-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00152	0.101	0.102	101	0.108	107	70-130	6	35	mg/kg	03.29.17 13:41	
Toluene	<0.00202	0.101	0.107	106	0.117	116	70-130	9	35	mg/kg	03.29.17 13:41	
Ethylbenzene	<0.00202	0.101	0.112	111	0.120	119	71-129	7	35	mg/kg	03.29.17 13:41	
m,p-Xylenes	<0.00202	0.202	0.222	110	0.236	116	70-135	6	35	mg/kg	03.29.17 13:41	
o-Xylene	<0.00303	0.101	0.114	113	0.123	122	71-133	8	35	mg/kg	03.29.17 13:41	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	118		119		109		80-120	%	03.29.17 13:41			
4-Bromofluorobenzene	97		105		98		80-120	%	03.29.17 13:41			



QC Summary 549469

COG Operating LLC GC Federal #31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3013625

Parent Sample Id: 549265-014

Matrix: Soil

MS Sample Id: 549265-014 S

Prep Method: SW5030B

Date Prep: 03.29.17

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Benzene	<0.00267	0.178	0.134	75	70-130	mg/kg	03.29.17 14:14	
Toluene	<0.00356	0.178	0.137	77	70-130	mg/kg	03.29.17 14:14	
Ethylbenzene	<0.00356	0.178	0.136	76	71-129	mg/kg	03.29.17 14:14	
m,p-Xylenes	<0.00356	0.356	0.265	74	70-135	mg/kg	03.29.17 14:14	
o-Xylene	<0.00534	0.178	0.134	75	71-133	mg/kg	03.29.17 14:14	

Surrogate	MS %Rec	MS Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		80-120	%	03.29.17 14:14
4-Bromofluorobenzene	107		80-120	%	03.29.17 14:14



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

CHAIN OF CUSTODY

Page 2 Of 2

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

www.xenco.com

Phoenix, Arizona (480-355-0900)

Xenco Quote #

Xenco Job #

5494169

Client / Reporting Information

Company Name / Branch:
COG Operating LLC

Company Address:
2407 PECOS Avenue Artesia NM 88210

Email:
dnee2@concho.com alieb@concho.com rhaskell@concho.com

Project Contact: Dakota Neel

Sampler's Name: Dakota Neel

Project Information

Project Name/Number:
GC Federal #31

Project Location:
Lea County, NM

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

PO Number:

No. Field ID / Point of Collection

No.	Field ID / Point of Collection	Collection		Matrix	# of bottles	Number of preserved bottles							Notes:
		Sample Depth	Date	Time		HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	
1	East - Surface	1'	3/17/17	12:35pm	5								TPH
2	East - 1'	2		12:35pm									BTEX
3	East - 2'	3		12:35pm									Chloride
4	East - 3'	3		12:35pm									
5	West - Surface	1		12:45pm									
6	West - 1'	1		12:45pm									
7	West - 2'	2		12:45pm									
8	West - 3'	3		12:45pm									
9	West - 3'	3		12:45pm									
10	Turnaround Time (Business days)												

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:

Received By:

11:00

Relinquished By:

Date Time:

Received By:

2 Julie Martinez

Relinquished by:

Date Time:

Received By:

3

Relinquished By:

Date Time:

Received By:

4

Relinquished by:

Date Time:

Received By:

5

Relinquished By:

Date Time:

Received By:

4

Temp: 1.8 IR ID: R-8

Relinquished by:

Date Time:

Received By:

5

Relinquished By:

Date Time:

Received By:

4

Temp: 1.9

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such 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 by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 03/25/2017 10:30:00 AM

Work Order #: 549469

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)?	1.9
#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
#22 <2 for all samples preserved with HNO ₃ , HCL, H ₂ SO ₄ ? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Jessica Kramer

Date: 03/27/2017

Checklist reviewed by:

Kelsey Brooks

Kelsey Brooks

Date: 03/27/2017