



Aug. 11, 2020

Oil Conservation Division, District II
811 S. First St.
Artesia, NM 88210

Bureau of Land Management, CFO
620 E. Green St.
Carlsbad, NM 88220

Re: Closure Report
Jack Federal #002H (2.16.20)
Tracking#: NRM2006336502
GPS: 32.09318, -104.23717
Unit Letter D, Section 31, Township 25 South, Range 27 East
Eddy County, New Mexico

To Whom it May Concern,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred at the Jack Federal #002H, located in Unit Letter D, Section 31, Township 25 South, Range 27 East Eddy County, New Mexico. The spill site coordinates are 32.09318, -104.23717.

BACKGROUND

The release was discovered on February 16, 2020 a C-141 initial report was submitted and accepted by the New Mexico Oil Conservation Division (NMOCD). The release was caused by internal corrosion. The entirety of the release was on pad. Approximately ten (10) barrels of produced water were released and eight (8) barrels of fluid recovered. The initial C-141 and final C-141 are attached in Appendix A.

GROUNDWATER AND REGULATORY

A search of a groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) was conducted to determine the average depth to groundwater within a one (1) Mile radius of the Release Site and identify any registered water wells within a 1/2 Mile of the Release Site. If none were identified, the approximate depth to groundwater was extrapolated from a Depth to Groundwater Map utilized by the NMOCD. The water well information is shown in Appendix B.

A risk-based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, the affected area has high potential for cave and karst, yet no other receptors (water wells, playas, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
High Karst	50-75 feet

Delineation and Closure Criteria:

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

INITIAL ASSESMENT

- Prior to remediation three trenches were utilized to evaluate the release area. The samples shown in Table 1 indicated that the impacted areas around T-1 and T-2 are below regulatory levels and no remediation is needed. The area around T-3 at 1' indicates an impact above regulatory levels.

REMEDIAL ACTIONS

- The impacted area around Sample Location T-3 was excavated to a depth of one (1) foot BGS.
- Table 1 shows the sample depths and analytical results.
- All the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Confirmation soil samples were taken from bottom and sidewalls of the excavation per NMAC 19.15.29.
- The site was backfilled with clean "like" material.
- The analytical data shown in Table 1 show that the release area meets NMOCD closure criteria (NMAC 19.15.29.12(E) Table I).

SAMPLING AND BACKFILLING

Once excavated, soil samples were collected from the sidewalls to confirm the removal of impacted soil greater than 600 mg/kg of chlorides. Composite sidewall samples were collected every 200 square feet, to be representative of the release area, for documentation purposes. The sample for CS South Wall did show elevated DRO. This sample was re-collected and came back below Table 1 closure criteria as well as the other three (3) sidewalls.

Once completed, the excavated area was backfilled with non-contaminated material with concentrations below 600 mg/kg of chlorides.

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the Bureau of Land Management grant closure approval for the Jack Federal #002H that occurred on February 16, 2020 (Tracking # NRM2006336502).

Should you have any questions or concerns on the closure report, please do not hesitate to contact me.

Sincerely,



Jacqui Harris
Senior HSE Coordinator
Jharris2@concho.com

Maps



LEGEND:

- | | | | |
|---|---------------------|---|-------------------------|
|  | Site Location |  | Non-Industrial Building |
|  | Fresh Water Well |  | Municipal Well Field |
|  | 100-Year Floodplain |  | Subsurface Mine |
|  | High/Critical Karst |  | 1/2 Mile Radius |

Figure 2

Aerial Map
COG Operating, LLC
Jack Federal #002H
Eddy County, NM

Drafted by: BC | Checked by: CS

Draft: January 11, 2018

GPS: 32.0923 -104.2374

UL "D", Sec. 31, T25S, R27E

TRC Proj. No: 323251



COG Operating LLC

Jack Federal #2H
Eddy County, New Mexico
32.093038, -104.237154

Legend

- Bottom Hole Composite Sample
- Excavated Area-1.5'
- Initial Sample Point
- Release Area
- Sidewall Composite Sample

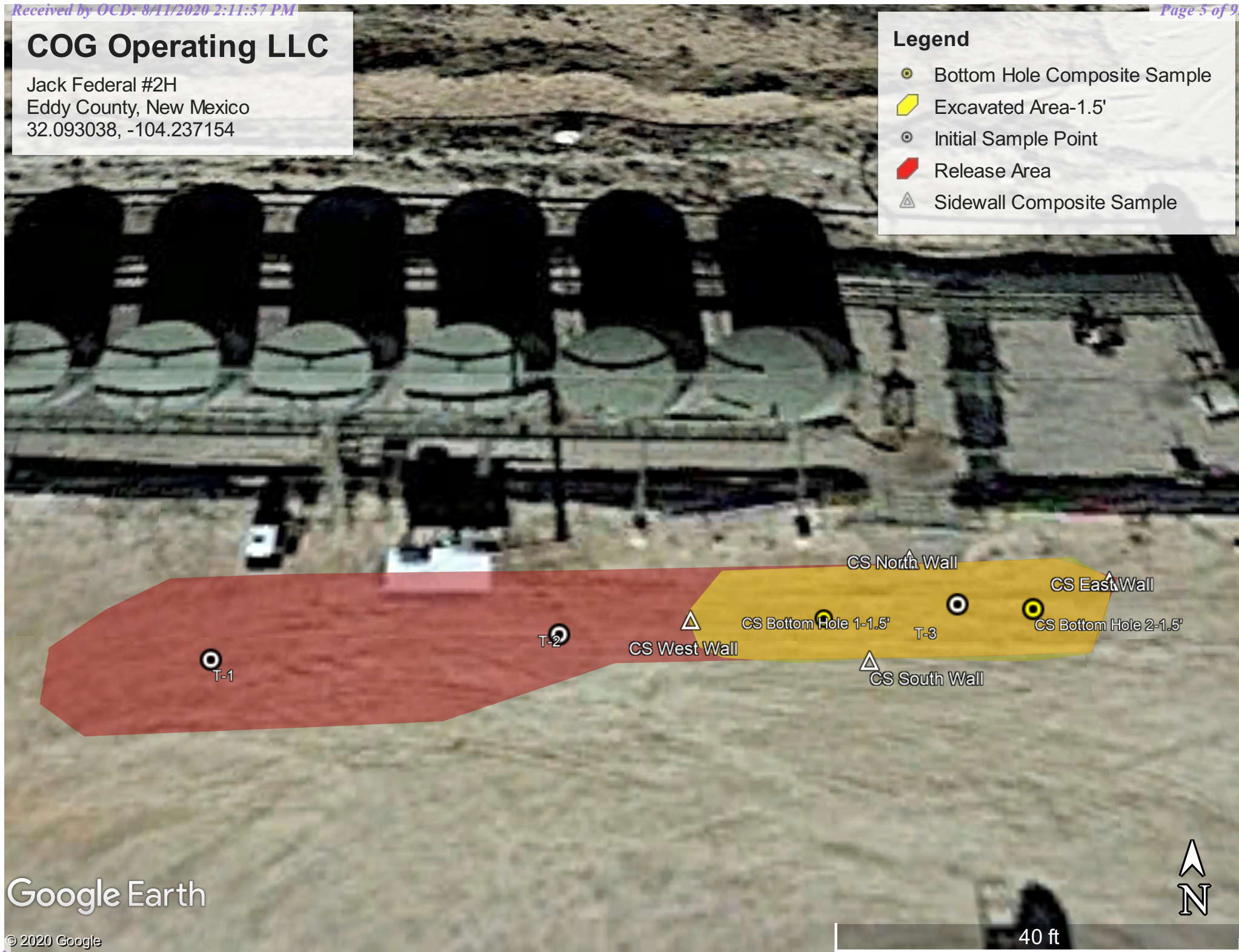


Table of Analytical Data

Table 1
COG Operating LLC.
Jack Federal 2
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)						Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
			In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO				Total
Average Depth to Groundwater (ft) 50 -100'														
NMOCD RRAL Limits (mg/kg)														
T-1 1'	3/23/2020	1'	X		<50.1	51.1	<50.1	51.1	<50.1	51.1	51.1	<0.00201	<0.00201	81.7
T-1 2'	3/23/2020	2'	X		<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<0.00202	<0.00202	29.8
T-1 3'	3/23/2020	3'	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	62.8
T-1 4'	3/23/2020	4'	X		<50.2	<50.2	<50.2	<50.2	<50.2	<50.2	<50.2	<0.00200	<0.00200	68.5
T-1 6'	3/23/2020	6'	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	17.4
T-2 1'	3/23/2020	1'	X		<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<0.00201	<0.00201	20.4
T-2 2'	3/23/2020	2'	X		<50.2	<50.2	<50.2	<50.2	<50.2	<50.2	<50.2	<0.00202	<0.00202	129.0
T-2 3'	3/23/2020	3'	X		<50.3	<50.3	<50.3	<50.3	<50.3	<50.3	<50.3	<0.00202	<0.00202	124.0
T-2 4'	3/23/2020	4'	X		<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<0.00200	<0.00200	107.0
T-3 1'	3/23/2020	1'		X	<50.1	2950	<50.1	2950	<50.1	2950	2950	<0.00202	<0.00202	61.5
T-3 2'	3/23/2020	2'	X		<50.2	<52.2	<50.2	<52.2	<50.2	<52.2	<52.2	<0.00202	<0.00202	94.8
T-3 3'	3/23/2020	3'	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	142.0
T-3 4'	3/23/2020	4'	X		<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<0.00198	<0.00198	193.0
CS Bottom Hole 1 1.5'	4/8/2020		X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	122.0
CS Bottom Hole 2 1.5'	4/8/2020		X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	152.0
CS North Wall	4/8/2020		X		<50.0	86.4	<50.0	86.4	<50.0	86.4	86.4	<0.00198	<0.00198	217.0
CS South Wall	4/8/2020		X		<49.8	114	<49.8	114	<49.8	114	114	<0.00199	<0.00199	221.0
CS South Wall	7/15/2020	Re-sampled	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	-
CS East Wall	4/8/2020		X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	221.0
CS West Wall	4/8/2020		X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	201.0

(-) Not Analyzed

Photos



Appendix A

C-141

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☐ The source of the release has been stopped.	
☐ The impacted area has been secured to protect human health and the environment.	
☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
☐ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name _____	Title: _____
Signature: <u>Patricia Espinoza</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	NRM2006336502
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

Characterization Report Checklist: Each of the following items must be included in the report.

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

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

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: _____ Title: _____

Signature: _____ *Jacqui Heredia* _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature: Jacqui Herrera Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: Justin [Signature] Date: _____

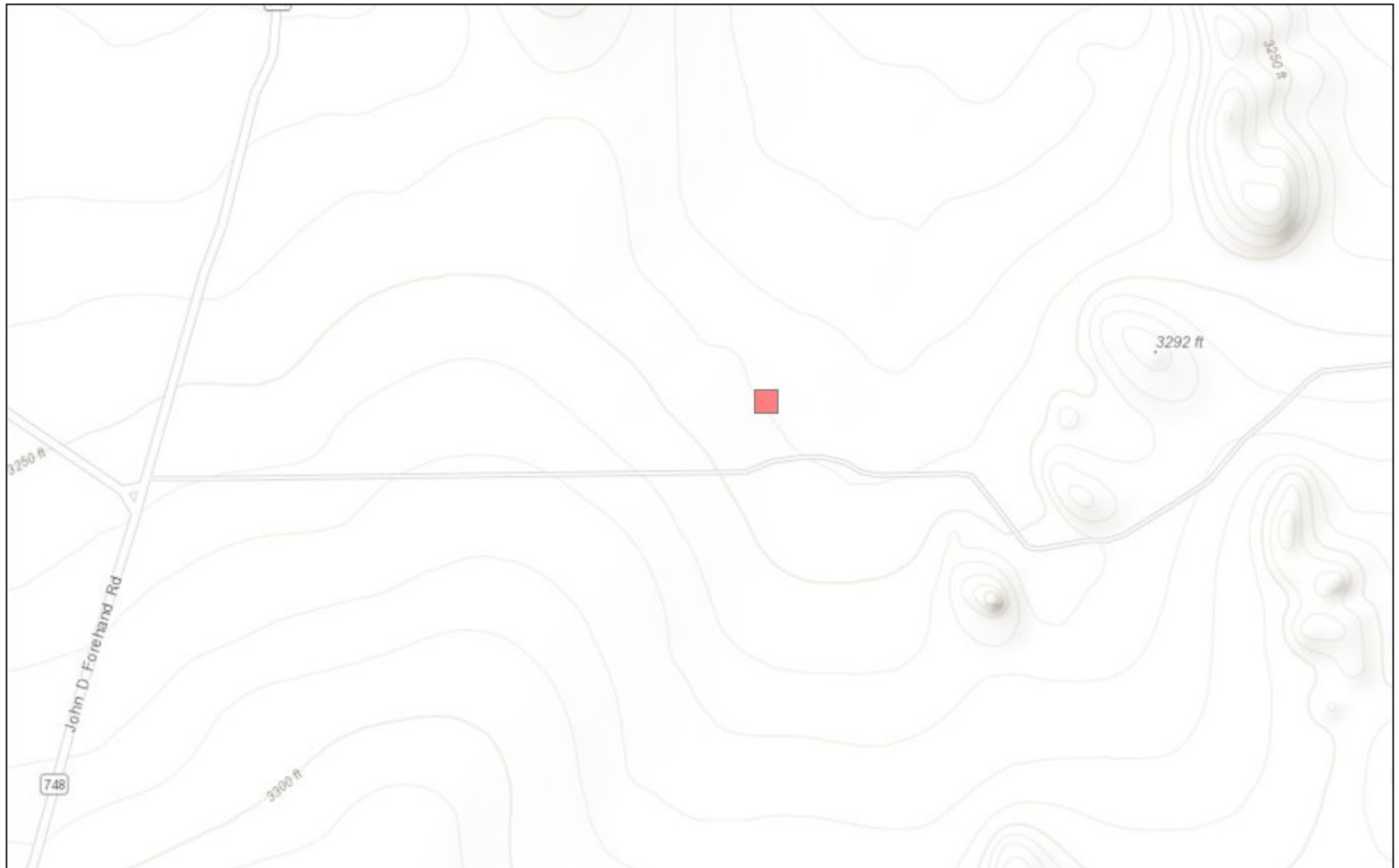
Printed Name: _____ Title: _____

Appendix B



LEGEND: Site Location	Figure 1 Topographical Map COG Operating, LLC Jack Federal #002H Eddy County, NM				
		Drafted by: BC Checked by: CS			
		Draft: January 11, 2019			
		GPS:	32.0923	-104.2374	
		UL "D", Sec. 31, T25S, R27E			
		TRC Proj. No:	323251		

New Mexico NFHL Data



July 14, 2020

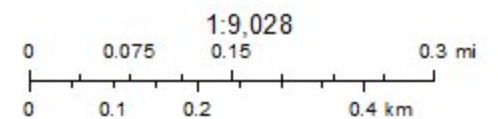
Flood Control Structures

- Bridge
- Dam, Weir
- All Other Structures

Flood Hazard Areas

- 1% Annual Chance Flood Hazard (A, AE)
- Shallow Flooding (AO, AH)
- 0.2% Annual Chance Flood Hazard

- Area with reduced risk due to levee
- Uns studied Area, Flooding Possible (D)
- State Boundary



FEMA
Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS,

Jack Federal #2H

Cave & Karst Potential

Legend

- High Kart Potential
- Jack Federal 2H

Jack Federal 2H





New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth	Well	Depth	Water Column
C_01013		C	ED			4	25	25S	26E	571505	3551456* 	702		245		
C_02221		CUB	ED	4	3	2	25	25S	26E	571412	3551961* 	1175		35		

Average Depth to Water:

—

Minimum Depth:

—

Maximum Depth:

—

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 571960.33

Northing (Y): 3550920.96

Radius: 1610

*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.

12/28/18 8:19 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C

Analytical

Reports



Certificate of Analysis Summary 656560

COG Operating LLC, Artesia, NM

Project Name: Jack Fed 2

Project Id:

Contact: Ike Tavaréz

Project Location: Eddy County, New Mexico

Date Received in Lab: Mon Mar-23-20 04:15 pm

Report Date: 25-MAR-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	656560-001	656560-002	656560-003	656560-004	656560-005	656560-006
	<i>Field Id:</i>	T-1 @1'	T-1 @2'	T-1 @3'	T-1 @4'	T-1 @6'	T-2 @1'
	<i>Depth:</i>	1- ft	2- ft	3- ft	4- ft	6- ft	1- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00
	<i>Analyzed:</i>	Mar-23-20 23:41	Mar-24-20 00:02	Mar-24-20 00:22	Mar-24-20 00:42	Mar-24-20 01:03	Mar-24-20 01:23
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00402 0.00402	<0.00403 0.00403	<0.00404 0.00404	<0.00399 0.00399	<0.00400 0.00400	<0.00402 0.00402
o-Xylene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02
	<i>Analyzed:</i>	Mar-23-20 19:39	Mar-23-20 19:45	Mar-23-20 19:51	Mar-23-20 20:08	Mar-23-20 20:13	Mar-23-20 20:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		81.7 49.8	29.8 10.1	62.8 50.1	68.5 49.8	17.4 9.98	20.4 9.96
TPH By SW8015 Mod	<i>Extracted:</i>	Mar-23-20 17:30	Mar-24-20 17:00	Mar-24-20 17:00	Mar-24-20 17:00	Mar-24-20 17:00	Mar-24-20 17:00
	<i>Analyzed:</i>	Mar-24-20 04:43	Mar-24-20 23:28	Mar-25-20 10:30	Mar-25-20 01:09	Mar-25-20 01:30	Mar-24-20 19:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<50.1 50.1	<50.1 50.1	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.1 50.1
Diesel Range Organics		51.1 50.1	<50.1 50.1	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.1 50.1
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<50.1 50.1	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.1 50.1
Total TPH		51.1 50.1	<50.1 50.1	<49.9 49.9	<50.2 50.2	<49.9 49.9	<50.1 50.1

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 - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Manager



Certificate of Analysis Summary 656560

COG Operating LLC, Artesia, NM

Project Name: Jack Fed 2

Project Id:

Contact: Ike Tavaréz

Project Location: Eddy County, New Mexico

Date Received in Lab: Mon Mar-23-20 04:15 pm

Report Date: 25-MAR-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	656560-007	656560-008	656560-009	656560-010	656560-011	656560-012
	<i>Field Id:</i>	T-2 @2'	T-2 @3'	T-2 @4'	T-3 @1'	T-3 @2'	T-3 @3'
	<i>Depth:</i>	2- ft	3- ft	4- ft	1- ft	2- ft	3- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00	Mar-23-20 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00	Mar-23-20 18:00
	<i>Analyzed:</i>	Mar-24-20 01:44	Mar-24-20 02:04	Mar-24-20 03:05	Mar-24-20 03:26	Mar-24-20 03:46	Mar-24-20 04:07
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202
Toluene		<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202
m,p-Xylenes		<0.00404 0.00404	<0.00404 0.00404	<0.00400 0.00400	<0.00403 0.00403	<0.00403 0.00403	<0.00404 0.00404
o-Xylene		<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202
Total Xylenes		<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202
Total BTEX		<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02	Mar-23-20 17:02
	<i>Analyzed:</i>	Mar-23-20 20:25	Mar-23-20 20:30	Mar-23-20 20:36	Mar-23-20 20:53	Mar-23-20 20:59	Mar-23-20 21:16
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		129 9.98	124 9.96	107 9.96	61.5 49.9	94.8 49.6	142 50.0
TPH By SW8015 Mod	<i>Extracted:</i>	Mar-24-20 17:00	Mar-24-20 17:00	Mar-24-20 17:00	Mar-24-20 17:00	Mar-24-20 17:00	Mar-24-20 17:00
	<i>Analyzed:</i>	Mar-24-20 21:07	Mar-24-20 21:27	Mar-24-20 21:47	Mar-24-20 22:07	Mar-24-20 22:28	Mar-24-20 22:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.1 50.1	<50.2 50.2	<50.0 50.0
Diesel Range Organics		<50.2 50.2	<50.3 50.3	<50.1 50.1	2950 50.1	52.2 50.2	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.3 50.3	<50.1 50.1	<50.1 50.1	<50.2 50.2	<50.0 50.0
Total TPH		<50.2 50.2	<50.3 50.3	<50.1 50.1	2950 50.1	52.2 50.2	<50.0 50.0

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 656560

COG Operating LLC, Artesia, NM

Project Name: Jack Fed 2

Project Id:

Contact: Ike Tavaréz

Project Location: Eddy County, New Mexico

Date Received in Lab: Mon Mar-23-20 04:15 pm

Report Date: 25-MAR-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	656560-013					
	Field Id:	T-3 @4'					
	Depth:	4- ft					
	Matrix:	SOIL					
	Sampled:	Mar-23-20 00:00					
BTEX by EPA 8021B	Extracted:	Mar-23-20 18:00					
	Analyzed:	Mar-24-20 04:27					
	Units/RL:	mg/kg RL					
Benzene		<0.00198 0.00198					
Toluene		<0.00198 0.00198					
Ethylbenzene		<0.00198 0.00198					
m,p-Xylenes		<0.00397 0.00397					
o-Xylene		<0.00198 0.00198					
Total Xylenes		<0.00198 0.00198					
Total BTEX		<0.00198 0.00198					
Chloride by EPA 300	Extracted:	Mar-23-20 17:02					
	Analyzed:	Mar-23-20 21:21					
	Units/RL:	mg/kg RL					
Chloride		193 10.1					
TPH By SW8015 Mod	Extracted:	Mar-24-20 17:00					
	Analyzed:	Mar-24-20 23:08					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons		<50.1 50.1					
Diesel Range Organics		<50.1 50.1					
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1					
Total TPH		<50.1 50.1					

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Jessica Kramer
Project Manager

Analytical Report 656560

for COG Operating LLC

Project Manager: Ike Tavaréz

Jack Fed 2

25-MAR-20

Collected By: Client



**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

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

Xenco-Tampa: Florida (E87429), North Carolina (483)



25-MAR-20

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **656560**

Jack Fed 2

Project Address: Eddy County, New Mexico

Ike Tavaréz:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 656560. 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. 656560 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Manager

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

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

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**Sample Cross Reference 656560****COG Operating LLC, Artesia, NM**

Jack Fed 2

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-1 @1'	S	03-23-20 00:00	1 ft	656560-001
T-1 @2'	S	03-23-20 00:00	2 ft	656560-002
T-1 @3'	S	03-23-20 00:00	3 ft	656560-003
T-1 @4'	S	03-23-20 00:00	4 ft	656560-004
T-1 @6'	S	03-23-20 00:00	6 ft	656560-005
T-2 @1'	S	03-23-20 00:00	1 ft	656560-006
T-2 @2'	S	03-23-20 00:00	2 ft	656560-007
T-2 @3'	S	03-23-20 00:00	3 ft	656560-008
T-2 @4'	S	03-23-20 00:00	4 ft	656560-009
T-3 @1'	S	03-23-20 00:00	1 ft	656560-010
T-3 @2'	S	03-23-20 00:00	2 ft	656560-011
T-3 @3'	S	03-23-20 00:00	3 ft	656560-012
T-3 @4'	S	03-23-20 00:00	4 ft	656560-013



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Jack Fed 2

Project ID:

Work Order Number(s): 656560

Report Date: 25-MAR-20

Date Received: 03/23/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3120699 BTEX by EPA 8021B

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



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @1'
Lab Sample Id: 656560-001

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	81.7	49.8	mg/kg	03.23.20 19.39		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120748

Date Prep: 03.23.20 17.30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	03.24.20 04.43	U	1
Diesel Range Organics	C10C28DRO	51.1	50.1	mg/kg	03.24.20 04.43		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.24.20 04.43	U	1
Total TPH	PHC635	51.1	50.1	mg/kg	03.24.20 04.43		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	113	%	70-135	03.24.20 04.43		
o-Terphenyl	84-15-1	118	%	70-135	03.24.20 04.43		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @1'
Lab Sample Id: 656560-001

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.23.20 23.41	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.23.20 23.41	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.23.20 23.41	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.23.20 23.41	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.23.20 23.41	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.23.20 23.41	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.23.20 23.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	03.23.20 23.41		
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.23.20 23.41		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @2'
Lab Sample Id: 656560-002

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.8	10.1	mg/kg	03.23.20 19.45		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	03.24.20 23.28	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	03.24.20 23.28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.24.20 23.28	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	03.24.20 23.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	126	%	70-135	03.24.20 23.28	
o-Terphenyl	84-15-1	129	%	70-135	03.24.20 23.28	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @2'
Lab Sample Id: 656560-002

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.24.20 00.02	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.24.20 00.02	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.24.20 00.02	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.24.20 00.02	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.24.20 00.02	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.24.20 00.02	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.24.20 00.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.24.20 00.02		
4-Bromofluorobenzene	460-00-4	96	%	70-130	03.24.20 00.02		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @3'
Lab Sample Id: 656560-003

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	62.8	50.1	mg/kg	03.23.20 19.51		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	03.25.20 10.30	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	03.25.20 10.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	03.25.20 10.30	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	03.25.20 10.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	103	%	70-135	03.25.20 10.30		
o-Terphenyl	84-15-1	107	%	70-135	03.25.20 10.30		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @3'
Lab Sample Id: 656560-003

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.24.20 00.22	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.24.20 00.22	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.24.20 00.22	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	03.24.20 00.22	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.24.20 00.22	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.24.20 00.22	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.24.20 00.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.24.20 00.22		
4-Bromofluorobenzene	460-00-4	98	%	70-130	03.24.20 00.22		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @4'
Lab Sample Id: 656560-004

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	68.5	49.8	mg/kg	03.23.20 20.08		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	03.25.20 01.09	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	03.25.20 01.09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	03.25.20 01.09	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	03.25.20 01.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	126	%	70-135	03.25.20 01.09	
o-Terphenyl	84-15-1	130	%	70-135	03.25.20 01.09	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @4'
Lab Sample Id: 656560-004

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.24.20 00.42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.24.20 00.42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.24.20 00.42	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.24.20 00.42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.24.20 00.42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.24.20 00.42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.24.20 00.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	03.24.20 00.42		
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.24.20 00.42		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @6'
Lab Sample Id: 656560-005

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.4	9.98	mg/kg	03.23.20 20.13		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	03.25.20 01.30	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	03.25.20 01.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	03.25.20 01.30	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	03.25.20 01.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	03.25.20 01.30	
o-Terphenyl	84-15-1	111	%	70-135	03.25.20 01.30	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-1 @6'
Lab Sample Id: 656560-005

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.24.20 01.03	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.24.20 01.03	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.24.20 01.03	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.24.20 01.03	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.24.20 01.03	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.24.20 01.03	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.24.20 01.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	03.24.20 01.03		
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.24.20 01.03		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @1'
Lab Sample Id: 656560-006

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.4	9.96	mg/kg	03.23.20 20.19		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	03.24.20 19.49	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	03.24.20 19.49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.24.20 19.49	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	03.24.20 19.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	122	%	70-135	03.24.20 19.49		
o-Terphenyl	84-15-1	125	%	70-135	03.24.20 19.49		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @1'
Lab Sample Id: 656560-006

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.24.20 01.23	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.24.20 01.23	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.24.20 01.23	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.24.20 01.23	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.24.20 01.23	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.24.20 01.23	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.24.20 01.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	03.24.20 01.23		
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.24.20 01.23		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @2'
Lab Sample Id: 656560-007

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	129	9.98	mg/kg	03.23.20 20.25		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	03.24.20 21.07	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	03.24.20 21.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	03.24.20 21.07	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	03.24.20 21.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	03.24.20 21.07	
o-Terphenyl	84-15-1	120	%	70-135	03.24.20 21.07	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @2'
Lab Sample Id: 656560-007

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.24.20 01.44	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.24.20 01.44	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.24.20 01.44	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	03.24.20 01.44	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.24.20 01.44	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.24.20 01.44	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.24.20 01.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	03.24.20 01.44		
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.24.20 01.44		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @3'
Lab Sample Id: 656560-008

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	124	9.96	mg/kg	03.23.20 20.30		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	03.24.20 21.27	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	03.24.20 21.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	03.24.20 21.27	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	03.24.20 21.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	122	%	70-135	03.24.20 21.27	
o-Terphenyl	84-15-1	128	%	70-135	03.24.20 21.27	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @3'

Matrix: Soil

Date Received: 03.23.20 16.15

Lab Sample Id: 656560-008

Date Collected: 03.23.20 00.00

Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.24.20 02.04	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.24.20 02.04	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.24.20 02.04	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	03.24.20 02.04	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.24.20 02.04	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.24.20 02.04	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.24.20 02.04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	03.24.20 02.04		
1,4-Difluorobenzene	540-36-3	98	%	70-130	03.24.20 02.04		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @4'
Lab Sample Id: 656560-009

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	107	9.96	mg/kg	03.23.20 20.36		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	03.24.20 21.47	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	03.24.20 21.47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.24.20 21.47	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	03.24.20 21.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	119	%	70-135	03.24.20 21.47		
o-Terphenyl	84-15-1	124	%	70-135	03.24.20 21.47		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-2 @4'
Lab Sample Id: 656560-009

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.24.20 03.05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.24.20 03.05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.24.20 03.05	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.24.20 03.05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.24.20 03.05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.24.20 03.05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.24.20 03.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	03.24.20 03.05		
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.24.20 03.05		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @1'
Lab Sample Id: 656560-010

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.5	49.9	mg/kg	03.23.20 20.53		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	03.24.20 22.07	U	1
Diesel Range Organics	C10C28DRO	2950	50.1	mg/kg	03.24.20 22.07		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.24.20 22.07	U	1
Total TPH	PHC635	2950	50.1	mg/kg	03.24.20 22.07		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	03.24.20 22.07	
o-Terphenyl	84-15-1	112	%	70-135	03.24.20 22.07	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @1'
Lab Sample Id: 656560-010

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.24.20 03.26	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.24.20 03.26	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.24.20 03.26	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.24.20 03.26	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.24.20 03.26	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.24.20 03.26	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.24.20 03.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	03.24.20 03.26		
1,4-Difluorobenzene	540-36-3	112	%	70-130	03.24.20 03.26		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @2'
Lab Sample Id: 656560-011

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	94.8	49.6	mg/kg	03.23.20 20.59		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	03.24.20 22.28	U	1
Diesel Range Organics	C10C28DRO	52.2	50.2	mg/kg	03.24.20 22.28		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	03.24.20 22.28	U	1
Total TPH	PHC635	52.2	50.2	mg/kg	03.24.20 22.28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	124	%	70-135	03.24.20 22.28	
o-Terphenyl	84-15-1	129	%	70-135	03.24.20 22.28	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @2'
Lab Sample Id: 656560-011

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.24.20 03.46	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.24.20 03.46	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.24.20 03.46	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.24.20 03.46	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.24.20 03.46	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.24.20 03.46	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.24.20 03.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.24.20 03.46		
4-Bromofluorobenzene	460-00-4	95	%	70-130	03.24.20 03.46		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @3'
Lab Sample Id: 656560-012

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	142	50.0	mg/kg	03.23.20 21.16		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	03.24.20 22.48	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	03.24.20 22.48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	03.24.20 22.48	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	03.24.20 22.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	03.24.20 22.48	
o-Terphenyl	84-15-1	125	%	70-135	03.24.20 22.48	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @3'
Lab Sample Id: 656560-012

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.24.20 04.07	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.24.20 04.07	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.24.20 04.07	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	03.24.20 04.07	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.24.20 04.07	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.24.20 04.07	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.24.20 04.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	03.24.20 04.07		
4-Bromofluorobenzene	460-00-4	95	%	70-130	03.24.20 04.07		



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @4'
Lab Sample Id: 656560-013

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3120705

Date Prep: 03.23.20 17.02

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	193	10.1	mg/kg	03.23.20 21.21		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3120790

Date Prep: 03.24.20 17.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	03.24.20 23.08	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	03.24.20 23.08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	03.24.20 23.08	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	03.24.20 23.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	03.24.20 23.08	
o-Terphenyl	84-15-1	115	%	70-135	03.24.20 23.08	



Certificate of Analytical Results 656560

COG Operating LLC, Artesia, NM

Jack Fed 2

Sample Id: T-3 @4'
Lab Sample Id: 656560-013

Matrix: Soil
Date Collected: 03.23.20 00.00

Date Received: 03.23.20 16.15
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 03.23.20 18.00

Basis: Wet Weight

Seq Number: 3120699

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	03.24.20 04.27	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.24.20 04.27	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.24.20 04.27	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	03.24.20 04.27	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	03.24.20 04.27	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.24.20 04.27	U	1
Total BTEX		<0.00198	0.00198	mg/kg	03.24.20 04.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.24.20 04.27		
4-Bromofluorobenzene	460-00-4	93	%	70-130	03.24.20 04.27		



Flagging Criteria

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

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

Jack Fed 2

Analytical Method: Chloride by EPA 300

Seq Number: 3120705

MB Sample Id: 7699593-1-BLK

Matrix: Solid

LCS Sample Id: 7699593-1-BKS

Prep Method: E300P

Date Prep: 03.23.20

LCSD Sample Id: 7699593-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	260	104	260	104	90-110	0	20	mg/kg	03.23.20 19:05	

Analytical Method: Chloride by EPA 300

Seq Number: 3120705

Parent Sample Id: 656545-003

Matrix: Soil

MS Sample Id: 656545-003 S

Prep Method: E300P

Date Prep: 03.23.20

MSD Sample Id: 656545-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	306	200	511	103	517	106	90-110	1	20	mg/kg	03.23.20 19:22	

Analytical Method: Chloride by EPA 300

Seq Number: 3120705

Parent Sample Id: 656560-009

Matrix: Soil

MS Sample Id: 656560-009 S

Prep Method: E300P

Date Prep: 03.23.20

MSD Sample Id: 656560-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	107	199	319	107	320	107	90-110	0	20	mg/kg	03.23.20 20:42	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3120748

MB Sample Id: 7699618-1-BLK

Matrix: Solid

LCS Sample Id: 7699618-1-BKS

Prep Method: SW8015P

Date Prep: 03.23.20

LCSD Sample Id: 7699618-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	859	86	834	83	70-135	3	35	mg/kg	03.24.20 00:20	
Diesel Range Organics	<50.0	1000	855	86	828	83	70-135	3	35	mg/kg	03.24.20 00:20	

Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	131		128		125		70-135	%	03.24.20 00:20
o-Terphenyl	121		109		105		70-135	%	03.24.20 00:20

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

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

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

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



COG Operating LLC

Jack Fed 2

Analytical Method: TPH By SW8015 Mod

Seq Number: 3120790

MB Sample Id: 7699643-1-BLK

Matrix: Solid

LCS Sample Id: 7699643-1-BKS

Prep Method: SW8015P

Date Prep: 03.24.20

LCSD Sample Id: 7699643-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1070	107	1030	103	70-135	4	35	mg/kg	03.24.20 13:44	
Diesel Range Organics	<50.0	1000	1130	113	1090	109	70-135	4	35	mg/kg	03.24.20 13:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		125		120		70-135	%	03.24.20 13:44
o-Terphenyl	104		126		121		70-135	%	03.24.20 13:44

Analytical Method: TPH By SW8015 Mod

Seq Number: 3120748

Matrix: Solid

MB Sample Id: 7699618-1-BLK

Prep Method: SW8015P

Date Prep: 03.23.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	03.24.20 00:00	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3120790

Matrix: Solid

MB Sample Id: 7699643-1-BLK

Prep Method: SW8015P

Date Prep: 03.24.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	03.24.20 13:24	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3120748

Matrix: Soil

Parent Sample Id: 656472-002

MS Sample Id: 656472-002 S

Prep Method: SW8015P

Date Prep: 03.23.20

MSD Sample Id: 656472-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	999	996	100	1090	109	70-135	9	35	mg/kg	03.24.20 01:21	
Diesel Range Organics	<50.0	999	1040	104	1150	115	70-135	10	35	mg/kg	03.24.20 01:21	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	114		126		70-135	%	03.24.20 01:21
o-Terphenyl	113		122		70-135	%	03.24.20 01:21

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

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

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

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



COG Operating LLC

Jack Fed 2

Analytical Method: TPH By SW8015 Mod

Seq Number: 3120790

Parent Sample Id: 656458-121

Matrix: Soil

MS Sample Id: 656458-121 S

Prep Method: SW8015P

Date Prep: 03.24.20

MSD Sample Id: 656458-121 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.1	1000	1020	102	935	93	70-135	9	35	mg/kg	03.24.20 15:24	
Diesel Range Organics	<50.1	1000	1170	117	1030	102	70-135	13	35	mg/kg	03.24.20 15:24	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		115		70-135	%	03.24.20 15:24
o-Terphenyl	127		112		70-135	%	03.24.20 15:24

Analytical Method: BTEX by EPA 8021B

Seq Number: 3120699

MB Sample Id: 7699587-1-BLK

Matrix: Solid

LCS Sample Id: 7699587-1-BKS

Prep Method: SW5030B

Date Prep: 03.23.20

LCSD Sample Id: 7699587-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.107	107	0.105	105	70-130	2	35	mg/kg	03.23.20 20:58	
Toluene	<0.00200	0.100	0.102	102	0.100	100	70-130	2	35	mg/kg	03.23.20 20:58	
Ethylbenzene	<0.00200	0.100	0.0981	98	0.0952	95	71-129	3	35	mg/kg	03.23.20 20:58	
m,p-Xylenes	<0.00400	0.200	0.202	101	0.196	98	70-135	3	35	mg/kg	03.23.20 20:58	
o-Xylene	<0.00200	0.100	0.102	102	0.0988	99	71-133	3	35	mg/kg	03.23.20 20:58	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		108		108		70-130	%	03.23.20 20:58
4-Bromofluorobenzene	95		94		92		70-130	%	03.23.20 20:58

Analytical Method: BTEX by EPA 8021B

Seq Number: 3120699

Parent Sample Id: 656545-003

Matrix: Soil

MS Sample Id: 656545-003 S

Prep Method: SW5030B

Date Prep: 03.23.20

MSD Sample Id: 656545-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0874	87	0.109	109	70-130	22	35	mg/kg	03.23.20 21:39	
Toluene	<0.00200	0.100	0.0839	84	0.102	102	70-130	19	35	mg/kg	03.23.20 21:39	
Ethylbenzene	<0.00200	0.100	0.0795	80	0.0950	95	71-129	18	35	mg/kg	03.23.20 21:39	
m,p-Xylenes	<0.00401	0.200	0.163	82	0.194	97	70-135	17	35	mg/kg	03.23.20 21:39	
o-Xylene	<0.00200	0.100	0.0815	82	0.0986	99	71-133	19	35	mg/kg	03.23.20 21:39	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		109		70-130	%	03.23.20 21:39
4-Bromofluorobenzene	97		90		70-130	%	03.23.20 21:39

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

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

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

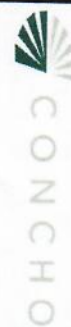
MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

CONCHO

Page 1 of 2

ORIGINAL COPYFinal 1.000

Analysis Request of Chain of Custody Record



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

Page 2 of 2

050507

[illegible]

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 03.23.2020 04.15.00 PM

Work Order #: 656560

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	20	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	No	Additional cooling process began after receipt of samples.
#4 *Custody Seals intact on shipping container/ cooler?	Yes	
#5 Custody Seals intact on sample bottles?	Yes	
#6 *Custody Seals Signed and dated?	Yes	
#7 *Chain of Custody present?	Yes	
#8 Any missing/extra samples?	No	
#9 Chain of Custody signed when relinquished/ received?	Yes	
#10 Chain of Custody agrees with sample labels/matrix?	Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	
#13 Samples properly preserved?	Yes	
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated test(s)?	Yes	
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	No	
#18 Water VOC samples have zero headspace?	N/A	

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 03.23.2020

Checklist reviewed by:



Jessica Kramer

Date: 03.24.2020



Certificate of Analysis Summary 658419

COG Operating LLC, Artesia, NM

Project Name: Jack Federal #002 (2/16/20)

Project Id:

Date Received in Lab: Thu 04.09.2020 10:50

Contact: Ike Tavaréz

Report Date: 04.10.2020 16:13

Project Location: Eddy County, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	658419-001	658419-002	658419-003	658419-004	658419-005	658419-006
	<i>Field Id:</i>	CS Bottom Hole 1 1.5'	CS Bottom Hole 2 1.5'	CS North Wall	CS South Wall	CS East Wall	CS West Wall
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.08.2020 00:00	04.08.2020 00:00	04.08.2020 00:00	04.08.2020 00:00	04.08.2020 00:00	04.08.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	04.09.2020 14:45	04.09.2020 14:45	04.09.2020 14:45	04.09.2020 14:45	04.09.2020 14:45	04.09.2020 14:45
	<i>Analyzed:</i>	04.10.2020 09:00	04.10.2020 09:21	04.10.2020 09:41	04.10.2020 10:02	04.10.2020 10:22	04.10.2020 10:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
m,p-Xylenes		<0.00399 0.00399	<0.00399 0.00399	<0.00397 0.00397	<0.00398 0.00398	<0.00396 0.00396	<0.00400 0.00400
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	04.09.2020 11:30	04.09.2020 11:30	04.09.2020 11:30	04.09.2020 11:30	04.09.2020 11:30	04.09.2020 11:30
	<i>Analyzed:</i>	04.09.2020 14:32	04.09.2020 14:38	04.09.2020 14:45	04.09.2020 14:52	04.09.2020 14:59	04.09.2020 15:06
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		122 50.0	152 50.4	217 24.9	221 25.0	221 25.0	201 25.0
TPH By SW8015 Mod	<i>Extracted:</i>	04.09.2020 14:00	04.09.2020 14:00	04.09.2020 14:00	04.09.2020 14:00	04.09.2020 14:00	04.09.2020 14:00
	<i>Analyzed:</i>	04.09.2020 20:55	04.09.2020 21:13	04.09.2020 21:49	04.09.2020 22:06	04.09.2020 22:24	04.09.2020 22:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.8 49.8	<50.0 50.0	<49.9 49.9
Diesel Range Organics		<50.0 50.0	<49.9 49.9	86.4 50.0	114 49.8	<50.0 50.0	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.8 49.8	<50.0 50.0	<49.9 49.9
Total TPH		<50.0 50.0	<49.9 49.9	86.4 50.0	114 49.8	<50.0 50.0	<49.9 49.9

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

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Manager



Analytical Report 658419

for

COG Operating LLC

Project Manager: Ike Tavaréz

Jack Federal #002 (2/16/20)

04.10.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



04.10.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **658419**

Jack Federal #002 (2/16/20)

Project Address: Eddy County, NM

Ike Tavaréz:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 658419. 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. 658419 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 658419****COG Operating LLC, Artesia, NM**

Jack Federal #002 (2/16/20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS Bottom Hole 1 1.5'	S	04.08.2020 00:00		658419-001
CS Bottom Hole 2 1.5'	S	04.08.2020 00:00		658419-002
CS North Wall	S	04.08.2020 00:00		658419-003
CS South Wall	S	04.08.2020 00:00		658419-004
CS East Wall	S	04.08.2020 00:00		658419-005
CS West Wall	S	04.08.2020 00:00		658419-006



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Jack Federal #002 (2/16/20)

Project ID:

Work Order Number(s): 658419

Report Date: 04.10.2020

Date Received: 04.09.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3122631 BTEX by EPA 8021B

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



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS Bottom Hole 1 1.5'**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-001

Date Collected: 04.08.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.09.2020 11:30

Basis: Wet Weight

Seq Number: 3122517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	122	50.0	mg/kg	04.09.2020 14:32		10

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 04.09.2020 14:00

Basis: Wet Weight

Seq Number: 3122627

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	04.09.2020 20:55	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	04.09.2020 20:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.09.2020 20:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.09.2020 20:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-130	04.09.2020 20:55	
o-Terphenyl	84-15-1	70	%	70-130	04.09.2020 20:55	



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS Bottom Hole 1 1.5'**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-001

Date Collected: 04.08.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 04.09.2020 14:45

Basis: Wet Weight

Seq Number: 3122631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.2020 09:00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.2020 09:00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.2020 09:00	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.10.2020 09:00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.2020 09:00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.2020 09:00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.2020 09:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	128	%	70-130	04.10.2020 09:00		
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.10.2020 09:00		



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS Bottom Hole 2 1.5'**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-002

Date Collected: 04.08.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.09.2020 11:30

Basis: Wet Weight

Seq Number: 3122517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	152	50.4	mg/kg	04.09.2020 14:38		10

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 04.09.2020 14:00

Basis: Wet Weight

Seq Number: 3122627

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	04.09.2020 21:13	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	04.09.2020 21:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.09.2020 21:13	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.09.2020 21:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	04.09.2020 21:13	
o-Terphenyl	84-15-1	78	%	70-130	04.09.2020 21:13	



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS Bottom Hole 2 1.5'**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-002

Date Collected: 04.08.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 04.09.2020 14:45

Basis: Wet Weight

Seq Number: 3122631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.2020 09:21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.2020 09:21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.2020 09:21	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.10.2020 09:21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.2020 09:21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.2020 09:21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.2020 09:21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	128	%	70-130	04.10.2020 09:21		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.10.2020 09:21		



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS North Wall**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-003

Date Collected: 04.08.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.09.2020 11:30

Basis: Wet Weight

Seq Number: 3122517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	217	24.9	mg/kg	04.09.2020 14:45		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 04.09.2020 14:00

Basis: Wet Weight

Seq Number: 3122627

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	04.09.2020 21:49	U	1
Diesel Range Organics	C10C28DRO	86.4	50.0	mg/kg	04.09.2020 21:49		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.09.2020 21:49	U	1
Total TPH	PHC635	86.4	50.0	mg/kg	04.09.2020 21:49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-130	04.09.2020 21:49	
o-Terphenyl	84-15-1	82	%	70-130	04.09.2020 21:49	



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS North Wall**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-003

Date Collected: 04.08.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 04.09.2020 14:45

Basis: Wet Weight

Seq Number: 3122631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.10.2020 09:41	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.10.2020 09:41	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.10.2020 09:41	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.10.2020 09:41	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.10.2020 09:41	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.10.2020 09:41	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.10.2020 09:41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	04.10.2020 09:41		
1,4-Difluorobenzene	540-36-3	110	%	70-130	04.10.2020 09:41		



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS South Wall**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-004

Date Collected: 04.08.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.09.2020 11:30

Basis: Wet Weight

Seq Number: 3122517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	221	25.0	mg/kg	04.09.2020 14:52		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 04.09.2020 14:00

Basis: Wet Weight

Seq Number: 3122627

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	04.09.2020 22:06	U	1
Diesel Range Organics	C10C28DRO	114	49.8	mg/kg	04.09.2020 22:06		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	04.09.2020 22:06	U	1
Total TPH	PHC635	114	49.8	mg/kg	04.09.2020 22:06		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-130	04.09.2020 22:06	
o-Terphenyl	84-15-1	86	%	70-130	04.09.2020 22:06	



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS South Wall**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-004

Date Collected: 04.08.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 04.09.2020 14:45

Basis: Wet Weight

Seq Number: 3122631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.10.2020 10:02	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.10.2020 10:02	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.10.2020 10:02	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.10.2020 10:02	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.10.2020 10:02	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.10.2020 10:02	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.10.2020 10:02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	04.10.2020 10:02		
4-Bromofluorobenzene	460-00-4	126	%	70-130	04.10.2020 10:02		



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: CS East Wall

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-005

Date Collected: 04.08.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.09.2020 11:30

Basis: Wet Weight

Seq Number: 3122517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	221	25.0	mg/kg	04.09.2020 14:59		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 04.09.2020 14:00

Basis: Wet Weight

Seq Number: 3122627

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	04.09.2020 22:24	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	04.09.2020 22:24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	04.09.2020 22:24	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	04.09.2020 22:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-130	04.09.2020 22:24	
o-Terphenyl	84-15-1	83	%	70-130	04.09.2020 22:24	



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: CS East Wall

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-005

Date Collected: 04.08.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 04.09.2020 14:45

Basis: Wet Weight

Seq Number: 3122631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.10.2020 10:22	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.10.2020 10:22	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.10.2020 10:22	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	04.10.2020 10:22	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.10.2020 10:22	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.10.2020 10:22	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.10.2020 10:22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.10.2020 10:22		
4-Bromofluorobenzene	460-00-4	116	%	70-130	04.10.2020 10:22		



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: **CS West Wall**

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-006

Date Collected: 04.08.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 04.09.2020 11:30

Basis: Wet Weight

Seq Number: 3122517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	201	25.0	mg/kg	04.09.2020 15:06		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 04.09.2020 14:00

Basis: Wet Weight

Seq Number: 3122627

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	04.09.2020 22:42	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	04.09.2020 22:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	04.09.2020 22:42	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	04.09.2020 22:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-130	04.09.2020 22:42	
o-Terphenyl	84-15-1	72	%	70-130	04.09.2020 22:42	



Certificate of Analytical Results 658419

COG Operating LLC, Artesia, NM

Jack Federal #002 (2/16/20)

Sample Id: CS West Wall

Matrix: Soil

Date Received: 04.09.2020 10:50

Lab Sample Id: 658419-006

Date Collected: 04.08.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 04.09.2020 14:45

Basis: Wet Weight

Seq Number: 3122631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.10.2020 10:42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.10.2020 10:42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.10.2020 10:42	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.10.2020 10:42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.10.2020 10:42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.10.2020 10:42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.10.2020 10:42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	04.10.2020 10:42		
1,4-Difluorobenzene	540-36-3	109	%	70-130	04.10.2020 10:42		



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC
Jack Federal #002 (2/16/20)

Analytical Method: Chloride by EPA 300

Seq Number: 3122517

MB Sample Id: 7700919-1-BLK

Matrix: Solid

LCS Sample Id: 7700919-1-BKS

Prep Method: E300P

Date Prep: 04.09.2020

LCSD Sample Id: 7700919-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	249	100	249	100	90-110	0	20	mg/kg	04.09.2020 11:43	

Analytical Method: Chloride by EPA 300

Seq Number: 3122517

Parent Sample Id: 658387-011

Matrix: Soil

MS Sample Id: 658387-011 S

Prep Method: E300P

Date Prep: 04.09.2020

MSD Sample Id: 658387-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.2	253	279	99	278	98	90-110	0	20	mg/kg	04.09.2020 12:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3122517

Parent Sample Id: 658387-012

Matrix: Soil

MS Sample Id: 658387-012 S

Prep Method: E300P

Date Prep: 04.09.2020

MSD Sample Id: 658387-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.9	253	284	100	285	101	90-110	0	20	mg/kg	04.09.2020 13:44	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3122627

MB Sample Id: 7700962-1-BLK

Matrix: Solid

LCS Sample Id: 7700962-1-BKS

Prep Method: SW8015P

Date Prep: 04.09.2020

LCSD Sample Id: 7700962-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	884	88	900	90	70-130	2	20	mg/kg	04.09.2020 17:21	
Diesel Range Organics	<50.0	1000	968	97	984	98	70-130	2	20	mg/kg	04.09.2020 17:21	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	76		95		95		70-130	%	04.09.2020 17:21
o-Terphenyl	81		87		92		70-130	%	04.09.2020 17:21

Analytical Method: TPH By SW8015 Mod

Seq Number: 3122627

Matrix: Solid

MB Sample Id: 7700962-1-BLK

Prep Method: SW8015P

Date Prep: 04.09.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	04.09.2020 17:02	

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

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

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

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



COG Operating LLC
Jack Federal #002 (2/16/20)

Analytical Method: TPH By SW8015 Mod

Seq Number: 3122627

Parent Sample Id: 658411-001

Matrix: Soil

MS Sample Id: 658411-001 S

Prep Method: SW8015P

Date Prep: 04.09.2020

MSD Sample Id: 658411-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<49.9	997	831	83	817	82	70-130	2	20	mg/kg	04.09.2020 18:15	
Diesel Range Organics	<49.9	997	885	89	880	88	70-130	1	20	mg/kg	04.09.2020 18:15	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		91		70-130	%	04.09.2020 18:15
o-Terphenyl	91		85		70-130	%	04.09.2020 18:15

Analytical Method: BTEX by EPA 8021B

Seq Number: 3122631

MB Sample Id: 7701025-1-BLK

Matrix: Solid

LCS Sample Id: 7701025-1-BKS

Prep Method: SW5030B

Date Prep: 04.09.2020

LCSD Sample Id: 7701025-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0823	82	0.0842	84	70-130	2	35	mg/kg	04.10.2020 01:52	
Toluene	<0.00200	0.100	0.102	102	0.103	103	70-130	1	35	mg/kg	04.10.2020 01:52	
Ethylbenzene	<0.00200	0.100	0.108	108	0.109	109	70-130	1	35	mg/kg	04.10.2020 01:52	
m,p-Xylenes	<0.00400	0.200	0.227	114	0.227	114	70-130	0	35	mg/kg	04.10.2020 01:52	
o-Xylene	<0.00200	0.100	0.116	116	0.116	116	70-130	0	35	mg/kg	04.10.2020 01:52	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		98		97		70-130	%	04.10.2020 01:52
4-Bromofluorobenzene	115		123		122		70-130	%	04.10.2020 01:52

Analytical Method: BTEX by EPA 8021B

Seq Number: 3122631

Parent Sample Id: 658411-001

Matrix: Soil

MS Sample Id: 658411-001 S

Prep Method: SW5030B

Date Prep: 04.09.2020

MSD Sample Id: 658411-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0754	75	0.0700	70	70-130	7	35	mg/kg	04.10.2020 02:33	
Toluene	<0.00200	0.100	0.0890	89	0.0799	80	70-130	11	35	mg/kg	04.10.2020 02:33	
Ethylbenzene	<0.00200	0.100	0.0915	92	0.0801	80	70-130	13	35	mg/kg	04.10.2020 02:33	
m,p-Xylenes	<0.00400	0.200	0.189	95	0.165	83	70-130	14	35	mg/kg	04.10.2020 02:33	
o-Xylene	<0.00200	0.100	0.0945	95	0.0826	83	70-130	13	35	mg/kg	04.10.2020 02:33	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		101		70-130	%	04.10.2020 02:33
4-Bromofluorobenzene	120		115		70-130	%	04.10.2020 02:33

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

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

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

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



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

[illegible]

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 04.09.2020 10.50.00 AM

Work Order #: 658419

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R9

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Brianna Teel

Date: 04.09.2020

Checklist reviewed by:



Jessica Kramer

Date: 04.09.2020



Xenco

Certificate of Analysis Summary 667342

COG Operating LLC, Artesia, NM

Project Name: Jack Federal #2

Project Id:

Contact: J Harris

Project Location: Eddy County, NM

Date Received in Lab: Wed 07.15.2020 15:32

Report Date: 07.16.2020 15:05

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 667342-001 Field Id: CS2_South Wall Depth: Matrix: SOIL Sampled: 07.15.2020 12:30					
BTEX by EPA 8021B	Extracted: 07.15.2020 16:37 Analyzed: 07.15.2020 20:22 Units/RL: mg/kg RL					
Benzene	<0.00200 0.00200					
Toluene	<0.00200 0.00200					
Ethylbenzene	<0.00200 0.00200					
m,p-Xylenes	<0.00400 0.00400					
o-Xylene	<0.00200 0.00200					
Total Xylenes	<0.00200 0.00200					
Total BTEX	<0.00200 0.00200					
TPH By SW8015 Mod	Extracted: 07.15.2020 15:40 Analyzed: 07.15.2020 17:21 Units/RL: mg/kg RL					
Gasoline Range Hydrocarbons	<50.0 50.0					
Diesel Range Organics	<50.0 50.0					
Motor Oil Range Hydrocarbons (MRO)	<50.0 50.0					
Total TPH	<50.0 50.0					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Xenco

Analytical Report 667342

for

COG Operating LLC

Project Manager: J Harris

Jack Federal #2

07.16.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.16.2020

Project Manager: **J Harris**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **667342**

Jack Federal #2

Project Address: Eddy County, NM

J Harris:

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 Eurofins Xenco, LLC Report Number(s) 667342. 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 Eurofins Xenco, LLC. 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. 667342 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 667342

COG Operating LLC, Artesia, NM

Jack Federal #2

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS2_South Wall	S	07.15.2020 12:30		667342-001



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Jack Federal #2

Project ID:
Work Order Number(s): 667342

Report Date: 07.16.2020
Date Received: 07.15.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Xenco

Certificate of Analytical Results 667342

COG Operating LLC, Artesia, NM

Jack Federal #2

Sample Id: CS2_South Wall

Matrix: Soil

Date Received: 07.15.2020 15:32

Lab Sample Id: 667342-001

Date Collected: 07.15.2020 12:30

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 07.15.2020 15:40

Basis: Wet Weight

Seq Number: 3131775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	07.15.2020 17:21	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 17:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 17:21	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 17:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	07.15.2020 17:21	
o-Terphenyl	84-15-1	103	%	70-135	07.15.2020 17:21	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.15.2020 16:37

Basis: Wet Weight

Seq Number: 3131767

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.15.2020 20:22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.15.2020 20:22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.15.2020 20:22	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.15.2020 20:22	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.15.2020 20:22	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.15.2020 20:22	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.15.2020 20:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	70-130	07.15.2020 20:22	
4-Bromofluorobenzene	460-00-4	106	%	70-130	07.15.2020 20:22	

Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

COG Operating LLC

Jack Federal #2

Analytical Method: TPH By SW8015 Mod

Seq Number: 3131775

MB Sample Id: 7707420-1-BLK

Matrix: Solid

LCS Sample Id: 7707420-1-BKS

Prep Method: SW8015P

Date Prep: 07.15.2020

LCSD Sample Id: 7707420-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1020	102	1010	101	70-135	1	35	mg/kg	07.15.2020 10:48	
Diesel Range Organics	<50.0	1000	1100	110	1050	105	70-135	5	35	mg/kg	07.15.2020 10:48	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		109		110		70-135	%	07.15.2020 10:48
o-Terphenyl	102		105		103		70-135	%	07.15.2020 10:48

Analytical Method: TPH By SW8015 Mod

Seq Number: 3131775

Matrix: Solid

MB Sample Id: 7707420-1-BLK

Prep Method: SW8015P

Date Prep: 07.15.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.15.2020 10:27	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3131775

Matrix: Soil

Parent Sample Id: 667020-001

MS Sample Id: 667020-001 S

Prep Method: SW8015P

Date Prep: 07.15.2020

MSD Sample Id: 667020-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.1	1000	871	87	880	88	70-135	1	35	mg/kg	07.15.2020 11:50	
Diesel Range Organics	<50.1	1000	1030	103	1020	102	70-135	1	35	mg/kg	07.15.2020 11:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		113		70-135	%	07.15.2020 11:50
o-Terphenyl	112		109		70-135	%	07.15.2020 11:50

Analytical Method: BTEX by EPA 8021B

Seq Number: 3131767

Matrix: Solid

MB Sample Id: 7707425-1-BLK

LCS Sample Id: 7707425-1-BKS

Prep Method: SW5035A

Date Prep: 07.15.2020

LCSD Sample Id: 7707425-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.111	111	0.114	114	70-130	3	35	mg/kg	07.15.2020 12:27	
Toluene	<0.00200	0.100	0.105	105	0.108	108	70-130	3	35	mg/kg	07.15.2020 12:27	
Ethylbenzene	<0.00200	0.100	0.0999	100	0.102	102	71-129	2	35	mg/kg	07.15.2020 12:27	
m,p-Xylenes	<0.00400	0.200	0.202	101	0.207	104	70-135	2	35	mg/kg	07.15.2020 12:27	
o-Xylene	<0.00200	0.100	0.0972	97	0.101	101	71-133	4	35	mg/kg	07.15.2020 12:27	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		101		70-130	%	07.15.2020 12:27
4-Bromofluorobenzene	94		98		102		70-130	%	07.15.2020 12:27

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

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

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

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

COG Operating LLC

Jack Federal #2

Analytical Method: BTEX by EPA 8021B

Seq Number: 3131767

Parent Sample Id: 667020-001

Matrix: Soil

MS Sample Id: 667020-001 S

Prep Method: SW5035A

Date Prep: 07.15.2020

MSD Sample Id: 667020-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.124	124	0.118	117	70-130	5	35	mg/kg	07.15.2020 13:10	
Toluene	<0.00201	0.100	0.117	117	0.114	113	70-130	3	35	mg/kg	07.15.2020 13:10	
Ethylbenzene	<0.00201	0.100	0.108	108	0.106	105	71-129	2	35	mg/kg	07.15.2020 13:10	
m,p-Xylenes	<0.00402	0.201	0.217	108	0.212	105	70-135	2	35	mg/kg	07.15.2020 13:10	
o-Xylene	<0.00201	0.100	0.106	106	0.104	103	71-133	2	35	mg/kg	07.15.2020 13:10	

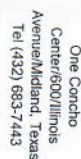
Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		100		70-130	%	07.15.2020 13:10
4-Bromofluorobenzene	101		100		70-130	%	07.15.2020 13:10

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

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

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

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

Page 1 of 1

Site Manager:

Eddy County, NM

Jacqui Harris

1

Sampler Name:

Jacqui Harris

SAMPLE IDENTIFICATION

LAB USE ONLY

CS2 - South Wall

7.15.20

12:30

	X

X

—

X

X

Hold

ANALYSIS REQUEST
(Circle or Specify Method No.)

11. Acquired by

Date: Time:

Received by:

Date:	Time:
-------	-------

1

20 distinguished by:

Date: Time:

Received by:

Date: _____ Time: _____

Acquired by:

Date: Time:

Received by:

Date: _____ Time: _____

LAB USE ONLY

Sample Temperature

5.2 / 5.0

☒ **RUSH:** Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

ORIGINAL COPY

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 07.15.2020 03.32.00 PM

Work Order #: 667342

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

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

Sample received in bulk container.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 07.15.2020

Checklist reviewed by:



Jessica Kramer

Date: 07.16.2020