



October 28, 2020

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

Kelsey Wade
Bureau of Land Management, CFO
620 E. Green Street
Carlsbad, NM 88220

Work Plan

Cabo Wabo 24 Federal #005H

Incident #NAB1923556267

GPS: 32.08284, -103.97705

Unit Letter L, Section 34, Township 25 South, Range 29 East

Eddy County, New Mexico

To Whom It May Concern,

COG Operating, LLC (COG) is pleased to submit the following work plan in response to a release that occurred in the pasture due to a ruptured flowline transporting fluids to the Cabo Wabo 24 Federal #005H. The release is located in Unit Letter L, Section 34, Township 25 South, Range 29 East Eddy County, New Mexico. The release occurred at latitude 32.08284, longitude -103.9770.

BACKGROUND

The release was discovered on August 2, 2019. An initial C-141 form was submitted to the New Mexico Oil Conservation Division (NMOCD) and the Bureau of Land Management (BLM). The initial C-141 is presented in Appendix A. The ruptured flowline resulted in the release of approximately forty-seven (47) barrels (bbls) of produced water with thirty-five (35) bbls being recovered.

GROUNDWATER AND REGULATORY FRAMEWORK

According to the New Mexico Office of the State Engineer (NMOSE) the nearest water well (POD # C 03507 POD1) is located approximately 2.4 miles southwest of the release point and indicates that groundwater in the project vicinity is between fifty (50) and one hundred (100) feet below ground surface (BGS). The water well information is shown in Appendix B.

A risk-based evaluation and site determination was 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, this release site is located within medium karst and on the edge of a flood zone. The groundwater data and the site characterization evaluation data are summarized in Appendix B. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
Medium Karst and Flood Zone	>50 ft

Delineation and Closure Criteria:

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

ASSESSMENT

On May 12th and May 19th, 2020, a hand auger was utilized to collect soil samples to delineate the impacted area. The sampling results are summarized in Table 1. The analytical reports are shown in Appendix B.

PROPOSED WORK PLAN

- The impacted area near sample locations AH-1, AH-2 and AH-3 will be excavated to a depth of four (4) feet BGS.
- The area of AH-4 was not vertically define. However, the area will be excavated to depth of approximately 5.0' to 6.0' BS to remove the chloride above 600 mg/kg.
- All of the excavated material will be hauled to an NMOCD approved solid waste disposal facility.
- The excavation will be backfilled with clean "like" material and contoured to match the surrounding terrain.

SAMPLING PLAN

Once the excavation is complete, confirmation soil samples will be collected from the excavated areas. To collect representative samples, composite samples (5-point composite) will be collected every 400 square feet from the bottom and sidewalls of the excavated areas. The soil samples will be laboratory analyzed for the constituents of concern. Discrete soil samples will be collected from the excavation if any "hot spots" are encountered during the excavation.

REMEDIATION TIMEFRAME AND ESTIMATED VOLUME

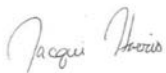
The remediation will be performed 90 days after the work plan has been approved. Approximately fifteen hundred (1,500) cubic yards of soil will be excavated and hauled offsite for proper disposal.

SITE RECLAMATION AND RESTORATION

Upon completion of the remediation the excavation will be backfilled with top soil and contoured to match the surrounding terrain. The surface will be left in a rough condition to approximate natural surface deviations. The site will be mechanically seeded with the soil specific BLM seed mixture once proper seasonal conditions exist.

Should you have any questions or concerns on the proposed remediation activities, please do not hesitate to contact me.

Sincerely,



Jacqui Harris
Senior HSE Coordinator
jharris2@concho.com

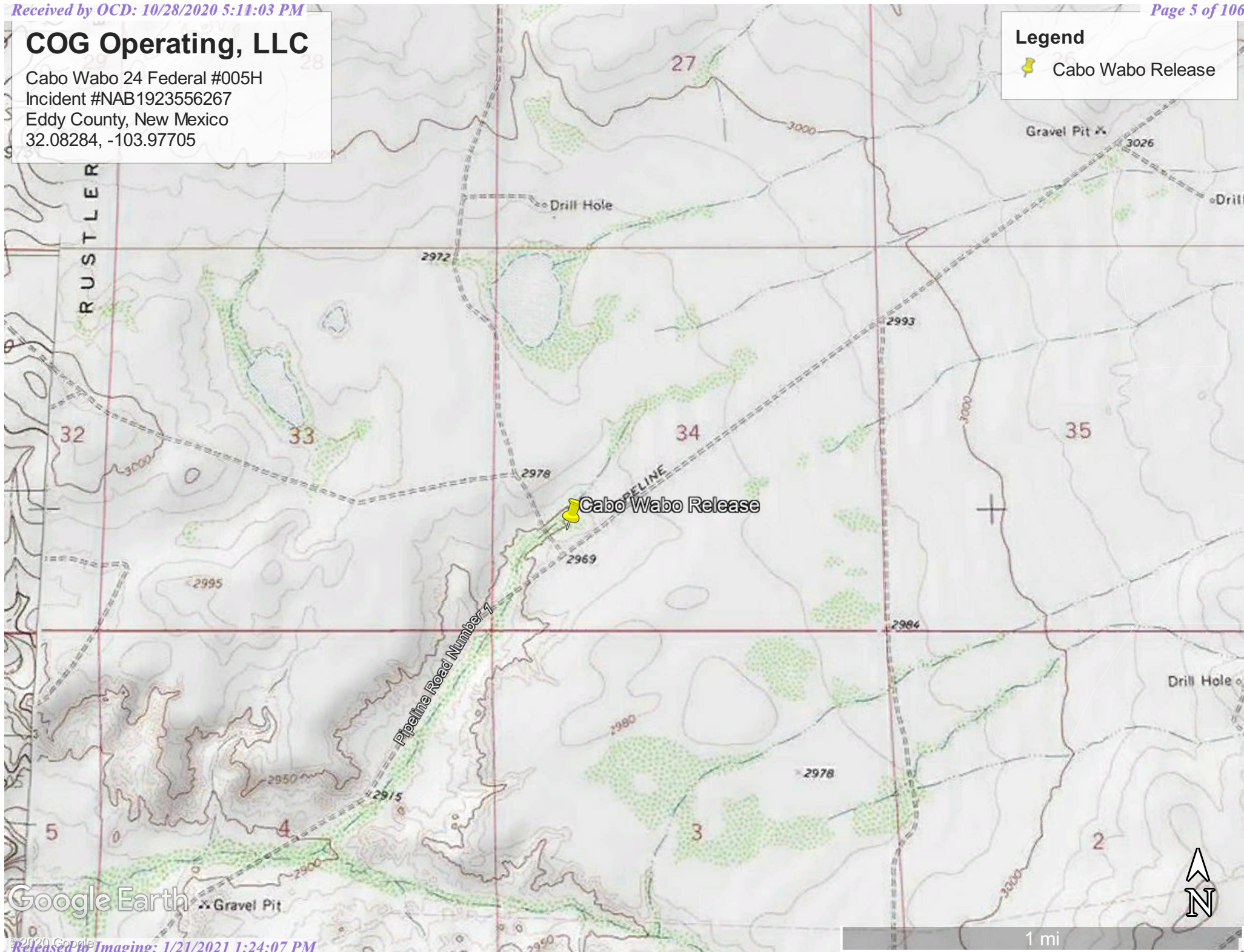
Maps

COG Operating, LLC

Cabo Wabo 24 Federal #005H
Incident #NAB1923556267
Eddy County, New Mexico
32.08284, -103.97705

Legend

 Cabo Wabo Release



Google Earth

COG Operating, LLC

Cabo Wabo 24 Federal #005H
Incident #NAB1923556267
Eddy County, New Mexico
32.08284, -103.97705

Legend

-  Auger Hole Sample Location
-  Proposed 4' Excavation
-  Proposed 5' Excavation
-  Release Area
-  Sample Location



Google Earth

Table of Analytical Data

Table 1
COG Operating LLC.
Cabo Wabo 24 Fed 5H
Eddy County, New Mexico

Sample ID	Sample Date	Soil Status		TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
		In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO	Total			
Average Depth to Groundwater (ft) - >100' Medium Karst													
NMOCD RAL Limits (mg/kg)				-	-	-	100	-	-	100	10	50	600
AH-1 0-1	5/12/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	9130
AH-1 2-2.5'	5/12/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	4190
AH-1 3-3.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	1610
AH-1 4-4.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	153
AH-2 0-1	5/12/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.00198	<0.00198	5350
AH-2 2-2.5'	5/12/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	5630
AH-2 3-3.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	2890
AH-2 4-4.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	333
AH-2 5-5.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	51.8
AH-3 0-1	5/12/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	3750
AH-3 1-1.5'	5/12/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00198	<0.00198	5890
AH-3 2-2.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	4460
AH-3 3-3.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	1260
AH-3 4-4.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	34.1
AH-4 0-1	5/12/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	1040
AH-4 1-1.5'	5/12/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	2920
AH-4 2-2.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	4280
AH-4 3-3.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	2330
AH-4 4-4.5'	5/12/2020	X		-	-	-	-	-	-	-	-	-	743
AH-5 0-1	5/19/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.000398	<0.000398	19.6
AH-5 2-2.5'	5/19/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.000399	<0.000399	12.7
AH-5 3-3.5'	5/19/2020	X		-	-	-	-	-	-	-	-	-	24.4
AH-5 4-4.5'	5/19/2020	X		-	-	-	-	-	-	-	-	-	10.8
AH-5 5-5.5'	5/19/2020	X		-	-	-	-	-	-	-	-	-	16.2
AH-6 0-1	5/19/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.000398	<0.000398	90.1
AH-6 2-2.5'	5/19/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.000397	<0.000397	23.3
AH-6 3-3.5'	5/19/2020	X		-	-	-	-	-	-	-	-	-	14.6
AH-6 4-4.5'	5/19/2020	X		-	-	-	-	-	-	-	-	-	33.3
AH-6 5-5.5'	5/19/2020	X		-	-	-	-	-	-	-	-	-	15.8
North-1	5/19/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.000400	<0.000400	11.6
North-2	5/19/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.000401	<0.000401	28.5
North-3	5/19/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.000404	<0.000404	9.83
South-1	5/19/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.000399	<0.000399	1940
South-2	5/19/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.000397	<0.000397	16.2
South-3	5/19/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.000403	<0.000403	12.4
East	5/19/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.000401	<0.000401	21.7
West	5/19/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.000398	<0.000398	12.8

Not Analyzed (-)

	Proposed Removal
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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>Delann Opreant</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
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: Jaqui Herrera Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☐ Detailed description of proposed remediation technique
- ☐ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☐ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☐ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Jacques Herrera Date: _____
email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: [Signature] Date: 01/21/2021

Appendix B

Site Assessment Data

COG Operating, LLC

Karst Map
Cabo Wabo 24 Federal #005H
Incident #NAB1923556267
Eddy County, New Mexico
32.08284, -103.97705

Legend

-  Cabo Wabo Release
-  Low Karst Potential
-  Medium Karst Potential

Cabo Wabo Release

Pipeline Road Number 1

Google Earth

4000 ft



National Flood Hazard Layer FIRMette



103°58'56"W 32°5'13"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/13/2020 at 2:22 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

USGS The National Map: Orthoimagery. Data refreshed April 2020

Released to Imaging: 1/21/2021 P:24:07 PM

103°58'19"W 32°4'43"N

Feet

1:6,000

1,500

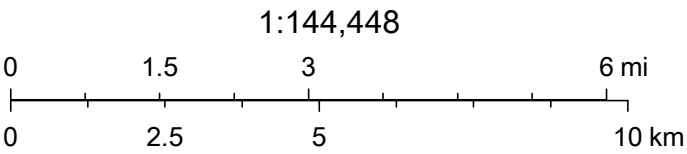
2,000

32.08284, -103.97705 buffer 5000m



10/13/2020, 12:38:25 PM

- OSE District Boundary
- Negative Easements
- SiteBoundaries



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03508 POD1	C	ED		1	3	3	05	26S	29E	593063	3548361	3874	140	75	65
C 03507 POD1	C	ED		1	3	3	05	26S	29E	593064	3548313	3896	140	78	62

Average Depth to Water: **76 feet**

Minimum Depth: **75 feet**

Maximum Depth: **78 feet**

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 596538.37

Northing (Y): 3550075.71

Radius: 5000

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.

10/13/20 11:47 AM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER



New Mexico Office of the State Engineer

Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)							
		(quarters are smallest to largest)				(NAD83 UTM in meters)			
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C	03507 POD1	1	3	3	05	26S	29E	593064	3548313

Driller License:	1058	Driller Company:	KEY'S DRILLING & PUMP SERVICE	
Driller Name:	KEY, CLINTON			
Drill Start Date:	08/26/2011	Drill Finish Date:	08/26/2011	Plug Date:
Log File Date:	09/12/2011	PCW Rev Date:		Source: Shallow
Pump Type:	SUBMER	Pipe Discharge Size:		Estimated Yield: 35 GPM
Casing Size:	6.00	Depth Well:	140 feet	Depth Water: 78 feet

Water Bearing Stratifications:	Top	Bottom	Description
	78	79	Shale/Mudstone/Siltstone
	105	106	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	75	112

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.

10/13/20 12:40 PM

POINT OF DIVERSION SUMMARY

Appendix C

Analytical Reports



Certificate of Analysis Summary 661697

COG Operating LLC, Artesia, NM

Project Name: Cabo Wabo 24 Fed. 5H (8-2-19)

Project Id:

Date Received in Lab: Fri 05.15.2020 09:00

Contact: Ike Tavaréz

Report Date: 05.19.2020 14:22

Project Location: Eddy Co. NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	661697-001	661697-002	661697-003	661697-004	661697-005	661697-006
	<i>Field Id:</i>	AH-1 0-1	AH-1 2-2.5'	AH-1 3-3.5'	AH-1 4-4.5'	AH-2 0-1	AH-2-2.5'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	05.18.2020 08:00	05.18.2020 08:00			05.18.2020 08:00	05.18.2020 08:00
	<i>Analyzed:</i>	05.19.2020 00:49	05.19.2020 01:09			05.19.2020 01:30	05.19.2020 01:50
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200			<0.00198 0.00198	<0.00200 0.00200
Toluene		<0.00199 0.00199	<0.00200 0.00200			<0.00198 0.00198	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200			<0.00198 0.00198	<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399			<0.00397 0.00397	<0.00401 0.00401
o-Xylene		<0.00199 0.00199	<0.00200 0.00200			<0.00198 0.00198	<0.00200 0.00200
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200			<0.00198 0.00198	<0.00200 0.00200
Total BTEX		<0.00199 0.00199	<0.00200 0.00200			<0.00198 0.00198	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45
	<i>Analyzed:</i>	05.16.2020 01:14	05.16.2020 01:19	05.16.2020 01:25	05.16.2020 00:56	05.16.2020 01:31	05.16.2020 01:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		9130 50.0	4190 25.1	1610 25.2	153 4.99	5350 49.9	5630 49.6
TPH By SW8015 Mod	<i>Extracted:</i>	05.15.2020 17:00	05.15.2020 17:00			05.15.2020 17:00	05.15.2020 17:00
	<i>Analyzed:</i>	05.16.2020 00:50	05.16.2020 09:21			05.16.2020 09:40	05.16.2020 09:59
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<50.0 50.0	<50.0 50.0			<49.8 49.8	<49.9 49.9
Diesel Range Organics		<50.0 50.0	<50.0 50.0			<49.8 49.8	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0			<49.8 49.8	<49.9 49.9
Total TPH		<50.0 50.0	<50.0 50.0			<49.8 49.8	<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.

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 661697

COG Operating LLC, Artesia, NM

Project Name: Cabo Wabo 24 Fed. 5H (8-2-19)

Project Id:

Contact: Ike Tavaréz

Project Location: Eddy Co. NM

Date Received in Lab: Fri 05.15.2020 09:00

Report Date: 05.19.2020 14:22

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	661697-007	661697-008	661697-009	661697-010	661697-011	661697-012
	<i>Field Id:</i>	AH-2-3.5'	AH-2 4-4.5'	AH-2 5-5.5'	AH-3 0-1	AH-3 1-1.5'	AH-3 2-2.5'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i>				05.18.2020 08:00	05.18.2020 08:00	
	<i>Analyzed:</i>				05.19.2020 02:10	05.18.2020 20:08	
	<i>Units/RL:</i>				mg/kg RL	mg/kg RL	
Benzene					<0.00199 0.00199	<0.00198 0.00198	
Toluene					<0.00199 0.00199	<0.00198 0.00198	
Ethylbenzene					<0.00199 0.00199	<0.00198 0.00198	
m,p-Xylenes					<0.00398 0.00398	<0.00396 0.00396	
o-Xylene					<0.00199 0.00199	<0.00198 0.00198	
Total Xylenes					<0.00199 0.00199	<0.00198 0.00198	
Total BTEX					<0.00199 0.00199	<0.00198 0.00198	
Chloride by EPA 300	<i>Extracted:</i>	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45
	<i>Analyzed:</i>	05.16.2020 01:54	05.16.2020 01:59	05.16.2020 02:16	05.16.2020 02:05	05.16.2020 02:11	05.16.2020 02:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2890 25.1	333 5.00	51.8 4.98	3750 24.8	5890 50.0	4460 50.2
TPH By SW8015 Mod	<i>Extracted:</i>				05.15.2020 17:00	05.15.2020 17:00	
	<i>Analyzed:</i>				05.16.2020 10:18	05.16.2020 10:37	
	<i>Units/RL:</i>				mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons					<50.0 50.0	<49.9 49.9	
Diesel Range Organics					<50.0 50.0	<49.9 49.9	
Motor Oil Range Hydrocarbons (MRO)					<50.0 50.0	<49.9 49.9	
Total TPH					<50.0 50.0	<49.9 49.9	

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 661697

COG Operating LLC, Artesia, NM

Project Name: Cabo Wabo 24 Fed. 5H (8-2-19)

Project Id:

Date Received in Lab: Fri 05.15.2020 09:00

Contact: Ike Tavarez

Report Date: 05.19.2020 14:22

Project Location: Eddy Co. NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	661697-013	661697-014	661697-015	661697-016	661697-017	661697-018
	<i>Field Id:</i>	AH-3 3-3.5'	AH-3 4-4.5'	AH-4 0-1	AH-4 1-1.5'	AH-4 2-2.5'	AH-4 3-3.5'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00	05.12.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i>			05.18.2020 08:00	05.18.2020 08:00		
	<i>Analyzed:</i>			05.19.2020 02:30	05.19.2020 02:50		
	<i>Units/RL:</i>			mg/kg RL	mg/kg RL		
Benzene				<0.00198 0.00198	<0.00199 0.00199		
Toluene				<0.00198 0.00198	<0.00199 0.00199		
Ethylbenzene				<0.00198 0.00198	<0.00199 0.00199		
m,p-Xylenes				<0.00396 0.00396	<0.00398 0.00398		
o-Xylene				<0.00198 0.00198	<0.00199 0.00199		
Total Xylenes				<0.00198 0.00198	<0.00199 0.00199		
Total BTEX				<0.00198 0.00198	<0.00199 0.00199		
Chloride by EPA 300	<i>Extracted:</i>	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45	05.15.2020 13:45
	<i>Analyzed:</i>	05.16.2020 02:39	05.16.2020 02:56	05.16.2020 03:02	05.16.2020 03:08	05.16.2020 03:14	05.16.2020 03:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1260 24.9	34.1 4.99	1040 25.0	2920 24.8	4280 25.2	2330 25.2
TPH By SW8015 Mod	<i>Extracted:</i>			05.15.2020 17:00	05.15.2020 17:00		
	<i>Analyzed:</i>			05.16.2020 10:55	05.16.2020 11:14		
	<i>Units/RL:</i>			mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons				<50.0 50.0	<50.0 50.0		
Diesel Range Organics				<50.0 50.0	<50.0 50.0		
Motor Oil Range Hydrocarbons (MRO)				<50.0 50.0	<50.0 50.0		
Total TPH				<50.0 50.0	<50.0 50.0		

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Jessica Kramer
Project Manager



Certificate of Analysis Summary 661697

COG Operating LLC, Artesia, NM

Project Name: Cabo Wabo 24 Fed. 5H (8-2-19)

Project Id:

Date Received in Lab: Fri 05.15.2020 09:00

Contact: Ike Tavaréz

Report Date: 05.19.2020 14:22

Project Location: Eddy Co. NM

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	661697-019					
	Field Id:	AH-4 4-4.5'					
	Depth:						
	Matrix:	SOIL					
	Sampled:	05.12.2020 00:00					
Chloride by EPA 300	Extracted:	05.15.2020 13:45					
	Analyzed:	05.16.2020 03:25					
	Units/RL:	mg/kg RL					
Chloride		743 5.03					

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Jessica Kramer
Project Manager



Analytical Report 661697

for

COG Operating LLC

Project Manager: Ike Tavaréz

Cabo Wabo 24 Fed. 5H (8-2-19)

05.19.2020

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
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: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05.19.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **661697**

Cabo Wabo 24 Fed. 5H (8-2-19)

Project Address: Eddy Co. 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) 661697. 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. 661697 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

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Sample Cross Reference 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 0-1	S	05.12.2020 00:00		661697-001
AH-1 2-2.5'	S	05.12.2020 00:00		661697-002
AH-1 3-3.5'	S	05.12.2020 00:00		661697-003
AH-1 4-4.5'	S	05.12.2020 00:00		661697-004
AH-2 0-1	S	05.12.2020 00:00		661697-005
AH-2 2-2.5'	S	05.12.2020 00:00		661697-006
AH-2 3-3.5'	S	05.12.2020 00:00		661697-007
AH-2 4-4.5'	S	05.12.2020 00:00		661697-008
AH-2 5-5.5'	S	05.12.2020 00:00		661697-009
AH-3 0-1	S	05.12.2020 00:00		661697-010
AH-3 1-1.5'	S	05.12.2020 00:00		661697-011
AH-3 2-2.5'	S	05.12.2020 00:00		661697-012
AH-3 3-3.5'	S	05.12.2020 00:00		661697-013
AH-3 4-4.5'	S	05.12.2020 00:00		661697-014
AH-4 0-1	S	05.12.2020 00:00		661697-015
AH-4 1-1.5'	S	05.12.2020 00:00		661697-016
AH-4 2-2.5'	S	05.12.2020 00:00		661697-017
AH-4 3-3.5'	S	05.12.2020 00:00		661697-018
AH-4 4-4.5'	S	05.12.2020 00:00		661697-019



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Cabo Wabo 24 Fed. 5H (8-2-19)

Project ID:

Work Order Number(s): 661697

Report Date: 05.19.2020

Date Received: 05.15.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3126361 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Samples affected are: 7703609-1-BLK.



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-1 0-1**
Lab Sample Id: 661697-001

Matrix: Soil
Date Collected: 05.12.2020 00:00

Date Received: 05.15.2020 09:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9130	50.0	mg/kg	05.16.2020 01:14		10

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.16.2020 00:50	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.16.2020 00:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.16.2020 00:50	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.16.2020 00:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-130	05.16.2020 00:50	
o-Terphenyl	84-15-1	105	%	70-130	05.16.2020 00:50	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-1 0-1**
Lab Sample Id: 661697-001

Matrix: Soil
Date Collected: 05.12.2020 00:00

Date Received: 05.15.2020 09:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.2020 00:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.2020 00:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.2020 00:49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.2020 00:49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.2020 00:49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.2020 00:49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.2020 00:49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	05.19.2020 00:49		
1,4-Difluorobenzene	540-36-3	105	%	70-130	05.19.2020 00:49		



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-1 2-2.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-002

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4190	25.1	mg/kg	05.16.2020 01:19		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.16.2020 09:21	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.16.2020 09:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.16.2020 09:21	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.16.2020 09:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-130	05.16.2020 09:21	
o-Terphenyl	84-15-1	102	%	70-130	05.16.2020 09:21	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-1 2-2.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-002

Date Collected: 05.12.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 01:09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 01:09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 01:09	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.19.2020 01:09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 01:09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 01:09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 01:09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	05.19.2020 01:09		
4-Bromofluorobenzene	460-00-4	91	%	70-130	05.19.2020 01:09		

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-1 3-3.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-003

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1610	25.2	mg/kg	05.16.2020 01:25		5

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-1 4-4.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-004

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	153	4.99	mg/kg	05.16.2020 00:56		1



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-2 0-1**
Lab Sample Id: 661697-005

Matrix: Soil
Date Collected: 05.12.2020 00:00

Date Received: 05.15.2020 09:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5350	49.9	mg/kg	05.16.2020 01:31		10

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	05.16.2020 09:40	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	05.16.2020 09:40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.16.2020 09:40	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.16.2020 09:40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-130	05.16.2020 09:40	
o-Terphenyl	84-15-1	106	%	70-130	05.16.2020 09:40	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-2 0-1**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-005

Date Collected: 05.12.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.19.2020 01:30	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.19.2020 01:30	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.19.2020 01:30	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	05.19.2020 01:30	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.19.2020 01:30	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.19.2020 01:30	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.19.2020 01:30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	05.19.2020 01:30		
4-Bromofluorobenzene	460-00-4	110	%	70-130	05.19.2020 01:30		



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-2-2.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-006

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5630	49.6	mg/kg	05.16.2020 01:48		10

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.16.2020 09:59	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.16.2020 09:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.16.2020 09:59	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.16.2020 09:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-130	05.16.2020 09:59	
o-Terphenyl	84-15-1	102	%	70-130	05.16.2020 09:59	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-2-2.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-006

Date Collected: 05.12.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 01:50	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 01:50	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 01:50	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.19.2020 01:50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 01:50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 01:50	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 01:50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	70-130	05.19.2020 01:50		
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.19.2020 01:50		

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-2-3.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-007

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2890	25.1	mg/kg	05.16.2020 01:54		5

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-2 4-4.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-008

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	333	5.00	mg/kg	05.16.2020 01:59		1

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-2 5-5.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-009

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	51.8	4.98	mg/kg	05.16.2020 02:16		1



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-3 0-1**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-010

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3750	24.8	mg/kg	05.16.2020 02:05		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.16.2020 10:18	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.16.2020 10:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.16.2020 10:18	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.16.2020 10:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-130	05.16.2020 10:18	
o-Terphenyl	84-15-1	104	%	70-130	05.16.2020 10:18	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-3 0-1**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-010

Date Collected: 05.12.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.2020 02:10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.2020 02:10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.2020 02:10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.2020 02:10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.2020 02:10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.2020 02:10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.2020 02:10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	70-130	05.19.2020 02:10		
1,4-Difluorobenzene	540-36-3	104	%	70-130	05.19.2020 02:10		



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-3 1-1.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-011

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5890	50.0	mg/kg	05.16.2020 02:11		10

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.16.2020 10:37	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.16.2020 10:37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.16.2020 10:37	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.16.2020 10:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-130	05.16.2020 10:37	
o-Terphenyl	84-15-1	103	%	70-130	05.16.2020 10:37	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-3 1-1.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-011

Date Collected: 05.12.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.18.2020 20:08	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.18.2020 20:08	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.18.2020 20:08	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	05.18.2020 20:08	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.18.2020 20:08	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.18.2020 20:08	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.18.2020 20:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	74	%	70-130	05.18.2020 20:08		
1,4-Difluorobenzene	540-36-3	95	%	70-130	05.18.2020 20:08		

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-3 2-2.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-012

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4460	50.2	mg/kg	05.16.2020 02:34		10

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-3 3-3.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-013

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1260	24.9	mg/kg	05.16.2020 02:39		5

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-3 4-4.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-014

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.1	4.99	mg/kg	05.16.2020 02:56		1



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-4 0-1**
Lab Sample Id: 661697-015

Matrix: Soil
Date Collected: 05.12.2020 00:00

Date Received: 05.15.2020 09:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1040	25.0	mg/kg	05.16.2020 03:02		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.16.2020 10:55	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.16.2020 10:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.16.2020 10:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.16.2020 10:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-130	05.16.2020 10:55	
o-Terphenyl	84-15-1	103	%	70-130	05.16.2020 10:55	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-4 0-1**
Lab Sample Id: 661697-015

Matrix: Soil
Date Collected: 05.12.2020 00:00

Date Received: 05.15.2020 09:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.19.2020 02:30	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.19.2020 02:30	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.19.2020 02:30	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	05.19.2020 02:30	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.19.2020 02:30	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.19.2020 02:30	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.19.2020 02:30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	79	%	70-130	05.19.2020 02:30		
1,4-Difluorobenzene	540-36-3	100	%	70-130	05.19.2020 02:30		



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-4 1-1.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-016

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2920	24.8	mg/kg	05.16.2020 03:08		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.15.2020 17:00

Basis: Wet Weight

Seq Number: 3126163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.16.2020 11:14	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.16.2020 11:14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.16.2020 11:14	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.16.2020 11:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-130	05.16.2020 11:14	
o-Terphenyl	84-15-1	103	%	70-130	05.16.2020 11:14	



Certificate of Analytical Results 661697

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-4 1-1.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-016

Date Collected: 05.12.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.18.2020 08:00

Basis: Wet Weight

Seq Number: 3126361

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.2020 02:50	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.2020 02:50	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.2020 02:50	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.2020 02:50	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.2020 02:50	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.2020 02:50	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.2020 02:50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	05.19.2020 02:50		
1,4-Difluorobenzene	540-36-3	105	%	70-130	05.19.2020 02:50		

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-4 2-2.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-017

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4280	25.2	mg/kg	05.16.2020 03:14		5

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-4 3-3.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-018

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2330	25.2	mg/kg	05.16.2020 03:19		5

**Certificate of Analytical Results 661697****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H (8-2-19)

Sample Id: **AH-4 4-4.5'**

Matrix: Soil

Date Received: 05.15.2020 09:00

Lab Sample Id: 661697-019

Date Collected: 05.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.15.2020 13:45

Basis: Wet Weight

Seq Number: 3126153

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	743	5.03	mg/kg	05.16.2020 03:25		1



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
Cabo Wabo 24 Fed. 5H (8-2-19)

Analytical Method: Chloride by EPA 300

Seq Number: 3126153

MB Sample Id: 7703429-1-BLK

Matrix: Solid

LCS Sample Id: 7703429-1-BKS

Prep Method: E300P

Date Prep: 05.15.2020

LCSD Sample Id: 7703429-1-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	245	98	250	100	90-110	2	20	mg/kg	05.16.2020 00:45	

Analytical Method: Chloride by EPA 300

Seq Number: 3126153

Parent Sample Id: 661697-004

Matrix: Soil

MS Sample Id: 661697-004 S

Prep Method: E300P

Date Prep: 05.15.2020

MSD Sample Id: 661697-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	153	250	399	98	386	93	90-110	3	20	mg/kg	05.16.2020 01:02	

Analytical Method: Chloride by EPA 300

Seq Number: 3126153

Parent Sample Id: 661697-009

Matrix: Soil

MS Sample Id: 661697-009 S

Prep Method: E300P

Date Prep: 05.15.2020

MSD Sample Id: 661697-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	51.8	249	294	97	290	96	90-110	1	20	mg/kg	05.16.2020 02:22	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3126163

MB Sample Id: 7703480-1-BLK

Matrix: Solid

LCS Sample Id: 7703480-1-BKS

Prep Method: SW8015P

Date Prep: 05.15.2020

LCSD Sample Id: 7703480-1-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	945	95	978	98	70-130	3	20	mg/kg	05.16.2020 00:12	
Diesel Range Organics	<50.0	1000	903	90	933	93	70-130	3	20	mg/kg	05.16.2020 00:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		120		122		70-130	%	05.16.2020 00:12
o-Terphenyl	102		116		113		70-130	%	05.16.2020 00:12

Analytical Method: TPH By SW8015 Mod

Seq Number: 3126163

Matrix: Solid

MB Sample Id: 7703480-1-BLK

Prep Method: SW8015P

Date Prep: 05.15.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.15.2020 23:53	

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
Cabo Wabo 24 Fed. 5H (8-2-19)

Analytical Method: TPH By SW8015 Mod

Seq Number: 3126163

Parent Sample Id: 661697-001

Matrix: Soil

MS Sample Id: 661697-001 S

Prep Method: SW8015P

Date Prep: 05.15.2020

MSD Sample Id: 661697-001 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	980	98	989	99	70-130	1	20	mg/kg	05.16.2020 08:44	
Diesel Range Organics	<49.9	997	909	91	914	91	70-130	1	20	mg/kg	05.16.2020 08:44	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	125		121		70-130	%	05.16.2020 08:44
o-Terphenyl	111		109		70-130	%	05.16.2020 08:44

Analytical Method: BTEX by EPA 8021B

Seq Number: 3126361

MB Sample Id: 7703609-1-BLK

Matrix: Solid

LCS Sample Id: 7703609-1-BKS

Prep Method: SW5035A

Date Prep: 05.18.2020

LCSD Sample Id: 7703609-1-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	0.0989	99	0.119	119	70-130	18	35	mg/kg	05.18.2020 17:29	
Toluene	<0.00200	0.100	0.103	103	0.110	110	70-130	7	35	mg/kg	05.18.2020 17:29	
Ethylbenzene	<0.00200	0.100	0.109	109	0.114	114	70-130	4	35	mg/kg	05.18.2020 17:29	
m,p-Xylenes	<0.00400	0.200	0.203	102	0.212	106	70-130	4	35	mg/kg	05.18.2020 17:29	
o-Xylene	<0.00200	0.100	0.0989	99	0.103	103	70-130	4	35	mg/kg	05.18.2020 17:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	85		96		101		70-130	%	05.18.2020 17:29
4-Bromofluorobenzene	55	**	124		122		70-130	%	05.18.2020 17:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3126361

Parent Sample Id: 661697-011

Matrix: Soil

MS Sample Id: 661697-011 S

Prep Method: SW5035A

Date Prep: 05.18.2020

MSD Sample Id: 661697-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0931	93	0.0841	84	70-130	10	35	mg/kg	05.18.2020 18:28	
Toluene	<0.00199	0.0996	0.0927	93	0.0891	89	70-130	4	35	mg/kg	05.18.2020 18:28	
Ethylbenzene	<0.00199	0.0996	0.0900	90	0.0894	90	70-130	1	35	mg/kg	05.18.2020 18:28	
m,p-Xylenes	<0.00398	0.199	0.166	83	0.164	82	70-130	1	35	mg/kg	05.18.2020 18:28	
o-Xylene	<0.00199	0.0996	0.0822	83	0.0802	80	70-130	2	35	mg/kg	05.18.2020 18:28	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		102		70-130	%	05.18.2020 18:28
4-Bromofluorobenzene	113		94		70-130	%	05.18.2020 18:28

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

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

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

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

Analysis Request of Chain of Custody Record



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

Page 1 of 2

Client Name:

COG

Site Manager:

Ike Tavaréz

Project Name:

Cabo Verde 24 Fed. SH (8-2-13)

Project Location:
(county, state)

Invoice to:

COG - Ike Tavaréz

Receiving Laboratory:

Xenco

Sampler Signature:

Ike Tavaréz

Comments:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB #
(LAB USE ONLY)

SAMPLE IDENTIFICATION

SAMPLING

YEAR:

DATE

TIME

MATRIX

PRESERVATIVE METHOD

WATER
SOILHCL
HNO₃
ICE

CONTAINERS

FILTERED (Y/N)

BTX 8021B BTX 8260B

TPH TX1005 (Ext to C35)

TPH 8015M (GRO - DRO - MRO)

PAH 8270C

Total Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8260B / 624

GC/MS Semi. Vol. 8270C/625

PCB's 8082 / 608

NORM

PLM (Asbestos)

Chloride

Chloride Sulfate TDS

General Water Chemistry (see attached list)

Anion/Cation Balance

Hold

Reinquished by: *[Signature]* Date: Time:
Reinquished by: *[Signature]* Date: Time:
Reinquished by: *[Signature]* Date: Time:

Received by: *[Signature]* Date: Time:
Received by: *[Signature]* Date: Time:
Received by: *[Signature]* Date: Time:

LAB USE ONLY

REMARKS:

Sample Temperature

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

Date: Time:

Received by:

Date: Time:

Date: Time:

Date: Time:

Date: Time:

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:



Analysis Request of Chain of Custody Record

of

ORIGINAL COPY

~~Final 1,000~~

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 05.15.2020 09.00.00 AM

Work Order #: 661697

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)?	2
#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 BTEX was in bulk container
#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: 05.15.2020

Checklist reviewed by:



Jessica Kramer

Date: 05.15.2020



Certificate of Analysis Summary 662293

COG Operating LLC, Artesia, NM

Project Name: Cabo Wabo 24 Fed. 5H

Project Id:

Date Received in Lab: Thu 05.21.2020 15:46

Contact: Ike Tavaréz

Report Date: 05.29.2020 15:12

Project Location: Eddy Co. NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	662293-001	662293-002	662293-003	662293-004	662293-005	662293-006
	<i>Field Id:</i>	AH-5 0-1	AH-5 2-2.5'	AH-5 3-3.5'	AH-5 4-4.5'	AH-5 5-5.5	AH-6 0-1
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	05.21.2020 16:30	05.21.2020 16:30				05.21.2020 16:30
	<i>Analyzed:</i>	05.21.2020 19:04	05.21.2020 19:25				05.21.2020 19:45
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				mg/kg RL
Benzene		<0.000398 0.000398	<0.000399 0.000399				<0.000398 0.000398
Toluene		<0.000398 0.000398	<0.000399 0.000399				<0.000398 0.000398
Ethylbenzene		<0.000398 0.000398	<0.000399 0.000399				<0.000398 0.000398
m,p-Xylenes		<0.000795 0.000795	<0.000798 0.000798				<0.000797 0.000797
o-Xylene		<0.000398 0.000398	<0.000399 0.000399				<0.000398 0.000398
Total Xylenes		<0.000398 0.000398	<0.000399 0.000399				<0.000398 0.000398
Total BTEX		<0.000398 0.000398	<0.000399 0.000399				<0.000398 0.000398
Chloride by EPA 300	<i>Extracted:</i>	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45
	<i>Analyzed:</i>	05.23.2020 14:13	05.23.2020 14:30	05.23.2020 14:36	05.23.2020 14:42	05.23.2020 14:47	05.23.2020 15:05
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		19.6 X 5.03	12.7 4.97	24.4 4.99	10.8 4.98	16.2 4.98	90.1 4.98
TPH By SW8015 Mod	<i>Extracted:</i>	05.22.2020 11:00	05.22.2020 11:00				05.22.2020 11:00
	<i>Analyzed:</i>	05.22.2020 13:30	05.22.2020 14:36				05.22.2020 14:58
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				mg/kg RL
Gasoline Range Hydrocarbons		<50.0 50.0	<50.0 50.0				<50.0 50.0
Diesel Range Organics		<50.0 50.0	<50.0 50.0				<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0				<50.0 50.0
Total TPH		<50.0 50.0	<50.0 50.0				<50.0 50.0

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

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

 Holly Taylor
 Project Manager



Certificate of Analysis Summary 662293

COG Operating LLC, Artesia, NM

Project Name: Cabo Wabo 24 Fed. 5H

Project Id:

Contact: Ike Tavarez

Project Location: Eddy Co. NM

Date Received in Lab: Thu 05.21.2020 15:46

Report Date: 05.29.2020 15:12

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	662293-007	662293-008	662293-009	662293-010	662293-011	662293-012
	<i>Field Id:</i>	AH-6 2-2.5'	AH-6 3-3.5'	AH-6 4-4.5'	AH-6 5-5.5'	North-1	North-2
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	05.21.2020 16:30				05.21.2020 16:30	05.21.2020 16:30
	<i>Analyzed:</i>	05.21.2020 20:06				05.21.2020 20:26	05.21.2020 20:47
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	mg/kg RL
Benzene		<0.000397 0.000397				<0.000400 0.000400	<0.000401 0.000401
Toluene		<0.000397 0.000397				<0.000400 0.000400	<0.000401 0.000401
Ethylbenzene		<0.000397 0.000397				<0.000400 0.000400	<0.000401 0.000401
m,p-Xylenes		<0.000794 0.000794				<0.000800 0.000800	<0.000802 0.000802
o-Xylene		<0.000397 0.000397				<0.000400 0.000400	<0.000401 0.000401
Total Xylenes		<0.000397 0.000397				<0.000400 0.000400	<0.000401 0.000401
Total BTEX		<0.000397 0.000397				<0.000400 0.000400	<0.000401 0.000401
Chloride by EPA 300	<i>Extracted:</i>	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45
	<i>Analyzed:</i>	05.23.2020 15:10	05.23.2020 15:16	05.23.2020 15:22	05.23.2020 15:27	05.23.2020 15:33	05.23.2020 15:50
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		23.3 4.96	14.6 4.97	33.3 4.99	15.8 4.97	11.6 5.05	28.5 5.02
TPH By SW8015 Mod	<i>Extracted:</i>	05.22.2020 11:00				05.22.2020 11:00	05.22.2020 11:00
	<i>Analyzed:</i>	05.22.2020 15:20				05.22.2020 15:42	05.22.2020 16:04
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<49.8 49.8				<50.0 50.0	<50.0 50.0
Diesel Range Organics		<49.8 49.8				<50.0 50.0	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8				<50.0 50.0	<50.0 50.0
Total TPH		<49.8 49.8				<50.0 50.0	<50.0 50.0

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

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

Holly Taylor
Project Manager



Certificate of Analysis Summary 662293

COG Operating LLC, Artesia, NM

Project Name: Cabo Wabo 24 Fed. 5H

Project Id:

Contact: Ike Tavaréz

Project Location: Eddy Co. NM

Date Received in Lab: Thu 05.21.2020 15:46

Report Date: 05.29.2020 15:12

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	662293-013	662293-014	662293-015	662293-016	662293-017	662293-018
	<i>Field Id:</i>	North-3	South-1	South-2	South-3	East	West
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00	05.19.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	05.21.2020 16:30	05.21.2020 16:30	05.21.2020 16:30	05.21.2020 16:30	05.21.2020 16:30	05.21.2020 16:30
	<i>Analyzed:</i>	05.21.2020 21:07	05.21.2020 21:28	05.21.2020 21:48	05.21.2020 22:08	05.21.2020 23:31	05.21.2020 23:51
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.000404 0.000404	<0.000399 0.000399	<0.000397 0.000397	<0.000403 0.000403	<0.000401 0.000401	<0.000398 0.000398
Toluene		<0.000404 0.000404	<0.000399 0.000399	<0.000397 0.000397	<0.000403 0.000403	<0.000401 0.000401	<0.000398 0.000398
Ethylbenzene		<0.000404 0.000404	<0.000399 0.000399	<0.000397 0.000397	<0.000403 0.000403	<0.000401 0.000401	<0.000398 0.000398
m,p-Xylenes		<0.000808 0.000808	<0.000798 0.000798	<0.000794 0.000794	<0.000806 0.000806	<0.000802 0.000802	<0.000797 0.000797
o-Xylene		<0.000404 0.000404	<0.000399 0.000399	<0.000397 0.000397	<0.000403 0.000403	<0.000401 0.000401	<0.000398 0.000398
Total Xylenes		<0.000404 0.000404	<0.000399 0.000399	<0.000397 0.000397	<0.000403 0.000403	<0.000401 0.000401	<0.000398 0.000398
Total BTEX		<0.000404 0.000404	<0.000399 0.000399	<0.000397 0.000397	<0.000403 0.000403	<0.000401 0.000401	<0.000398 0.000398
Chloride by EPA 300	<i>Extracted:</i>	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45	05.22.2020 16:45
	<i>Analyzed:</i>	05.23.2020 15:56	05.23.2020 16:13	05.23.2020 16:19	05.23.2020 16:25	05.23.2020 16:30	05.23.2020 16:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		9.83 5.00	1940 24.9	16.2 5.04	12.4 4.95	21.7 4.97	12.8 4.97
TPH By SW8015 Mod	<i>Extracted:</i>	05.22.2020 11:00	05.22.2020 11:00	05.22.2020 11:00	05.22.2020 11:00	05.22.2020 11:00	05.22.2020 11:00
	<i>Analyzed:</i>	05.22.2020 16:26	05.22.2020 16:48	05.22.2020 17:09	05.22.2020 17:31	05.22.2020 18:14	05.22.2020 18:36
	<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		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9
Diesel Range Organics		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9
Total TPH		<49.8 49.8	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<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

Holly Taylor
Project Manager



Analytical Report 662293

for

COG Operating LLC

Project Manager: Ike Tavaréz

Cabo Wabo 24 Fed. 5H

05.29.2020

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
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: TNI02385): Texas (T104704534-20-6)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05.29.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **662293**

Cabo Wabo 24 Fed. 5H

Project Address: Eddy Co. 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) 662293. 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. 662293 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 'Holly Taylor'.

Holly Taylor
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-5 0-1	S	05.19.2020 00:00		662293-001
AH-5 2-2.5'	S	05.19.2020 00:00		662293-002
AH-5 3-3.5'	S	05.19.2020 00:00		662293-003
AH-5 4-4.5'	S	05.19.2020 00:00		662293-004
AH-5 5-5.5	S	05.19.2020 00:00		662293-005
AH-6 0-1	S	05.19.2020 00:00		662293-006
AH-6 2-2.5'	S	05.19.2020 00:00		662293-007
AH-6 3-3.5'	S	05.19.2020 00:00		662293-008
AH-6 4-4.5'	S	05.19.2020 00:00		662293-009
AH-6 5-5.5'	S	05.19.2020 00:00		662293-010
North-1	S	05.19.2020 00:00		662293-011
North-2	S	05.19.2020 00:00		662293-012
North-3	S	05.19.2020 00:00		662293-013
South-1	S	05.19.2020 00:00		662293-014
South-2	S	05.19.2020 00:00		662293-015
South-3	S	05.19.2020 00:00		662293-016
East	S	05.19.2020 00:00		662293-017
West	S	05.19.2020 00:00		662293-018



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Cabo Wabo 24 Fed. 5H

Project ID:
Work Order Number(s): 662293

Report Date: 05.29.2020
Date Received: 05.21.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3126698 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Matrix interferences is suspected.
Samples affected are: 662293-013.

Batch: LBA-3126844 Chloride by EPA 300

Lab Sample ID 662293-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 662293-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018.

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



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-5 0-1**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-001

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.6	5.03	mg/kg	05.23.2020 14:13	X	1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.22.2020 13:30	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.22.2020 13:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.22.2020 13:30	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.22.2020 13:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	79	%	70-130	05.22.2020 13:30	
o-Terphenyl	84-15-1	90	%	70-130	05.22.2020 13:30	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-5 0-1**
Lab Sample Id: 662293-001

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000398	0.000398	mg/kg	05.21.2020 19:04	U	1
Toluene	108-88-3	<0.000398	0.000398	mg/kg	05.21.2020 19:04	U	1
Ethylbenzene	100-41-4	<0.000398	0.000398	mg/kg	05.21.2020 19:04	U	1
m,p-Xylenes	179601-23-1	<0.000795	0.000795	mg/kg	05.21.2020 19:04	U	1
o-Xylene	95-47-6	<0.000398	0.000398	mg/kg	05.21.2020 19:04	U	1
Total Xylenes	1330-20-7	<0.000398	0.000398	mg/kg	05.21.2020 19:04	U	1
Total BTEX		<0.000398	0.000398	mg/kg	05.21.2020 19:04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	05.21.2020 19:04		
1,4-Difluorobenzene	540-36-3	108	%	70-130	05.21.2020 19:04		



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: AH-5 2-2.5'

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-002

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.7	4.97	mg/kg	05.23.2020 14:30		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.22.2020 14:36	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.22.2020 14:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.22.2020 14:36	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.22.2020 14:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	05.22.2020 14:36	
o-Terphenyl	84-15-1	100	%	70-130	05.22.2020 14:36	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: AH-5 2-2.5'

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-002

Date Collected: 05.19.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000399	0.000399	mg/kg	05.21.2020 19:25	U	1
Toluene	108-88-3	<0.000399	0.000399	mg/kg	05.21.2020 19:25	U	1
Ethylbenzene	100-41-4	<0.000399	0.000399	mg/kg	05.21.2020 19:25	U	1
m,p-Xylenes	179601-23-1	<0.000798	0.000798	mg/kg	05.21.2020 19:25	U	1
o-Xylene	95-47-6	<0.000399	0.000399	mg/kg	05.21.2020 19:25	U	1
Total Xylenes	1330-20-7	<0.000399	0.000399	mg/kg	05.21.2020 19:25	U	1
Total BTEX		<0.000399	0.000399	mg/kg	05.21.2020 19:25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	05.21.2020 19:25		
1,4-Difluorobenzene	540-36-3	114	%	70-130	05.21.2020 19:25		

**Certificate of Analytical Results 662293****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-5 3-3.5'**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-003

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.4	4.99	mg/kg	05.23.2020 14:36		1

**Certificate of Analytical Results 662293****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-5 4-4.5'**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-004

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.8	4.98	mg/kg	05.23.2020 14:42		1

**Certificate of Analytical Results 662293****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-5 5-5.5**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-005

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.2	4.98	mg/kg	05.23.2020 14:47		1



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-6 0-1**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-006

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	90.1	4.98	mg/kg	05.23.2020 15:05		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.22.2020 14:58	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.22.2020 14:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.22.2020 14:58	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.22.2020 14:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	05.22.2020 14:58	
o-Terphenyl	84-15-1	98	%	70-130	05.22.2020 14:58	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-6 0-1**
Lab Sample Id: 662293-006

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000398	0.000398	mg/kg	05.21.2020 19:45	U	1
Toluene	108-88-3	<0.000398	0.000398	mg/kg	05.21.2020 19:45	U	1
Ethylbenzene	100-41-4	<0.000398	0.000398	mg/kg	05.21.2020 19:45	U	1
m,p-Xylenes	179601-23-1	<0.000797	0.000797	mg/kg	05.21.2020 19:45	U	1
o-Xylene	95-47-6	<0.000398	0.000398	mg/kg	05.21.2020 19:45	U	1
Total Xylenes	1330-20-7	<0.000398	0.000398	mg/kg	05.21.2020 19:45	U	1
Total BTEX		<0.000398	0.000398	mg/kg	05.21.2020 19:45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.21.2020 19:45		
1,4-Difluorobenzene	540-36-3	100	%	70-130	05.21.2020 19:45		



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-6 2-2.5'**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-007

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.3	4.96	mg/kg	05.23.2020 15:10		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	05.22.2020 15:20	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	05.22.2020 15:20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.22.2020 15:20	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.22.2020 15:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-130	05.22.2020 15:20	
o-Terphenyl	84-15-1	99	%	70-130	05.22.2020 15:20	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-6 2-2.5'**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-007

Date Collected: 05.19.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000397	0.000397	mg/kg	05.21.2020 20:06	U	1
Toluene	108-88-3	<0.000397	0.000397	mg/kg	05.21.2020 20:06	U	1
Ethylbenzene	100-41-4	<0.000397	0.000397	mg/kg	05.21.2020 20:06	U	1
m,p-Xylenes	179601-23-1	<0.000794	0.000794	mg/kg	05.21.2020 20:06	U	1
o-Xylene	95-47-6	<0.000397	0.000397	mg/kg	05.21.2020 20:06	U	1
Total Xylenes	1330-20-7	<0.000397	0.000397	mg/kg	05.21.2020 20:06	U	1
Total BTEX		<0.000397	0.000397	mg/kg	05.21.2020 20:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	99	%	70-130	05.21.2020 20:06	
4-Bromofluorobenzene	460-00-4	97	%	70-130	05.21.2020 20:06	

**Certificate of Analytical Results 662293****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-6 3-3.5'**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-008

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.6	4.97	mg/kg	05.23.2020 15:16		1

**Certificate of Analytical Results 662293****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-6 4-4.5'**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-009

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.3	4.99	mg/kg	05.23.2020 15:22		1

**Certificate of Analytical Results 662293****COG Operating LLC, Artesia, NM**

Cabo Wabo 24 Fed. 5H

Sample Id: **AH-6 5-5.5'**

Matrix: Soil

Date Received: 05.21.2020 15:46

Lab Sample Id: 662293-010

Date Collected: 05.19.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.8	4.97	mg/kg	05.23.2020 15:27		1



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **North-1**
Lab Sample Id: 662293-011

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.6	5.05	mg/kg	05.23.2020 15:33		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.22.2020 15:42	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.22.2020 15:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.22.2020 15:42	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.22.2020 15:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-130	05.22.2020 15:42	
o-Terphenyl	84-15-1	88	%	70-130	05.22.2020 15:42	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **North-1**
Lab Sample Id: 662293-011

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000400	0.000400	mg/kg	05.21.2020 20:26	U	1
Toluene	108-88-3	<0.000400	0.000400	mg/kg	05.21.2020 20:26	U	1
Ethylbenzene	100-41-4	<0.000400	0.000400	mg/kg	05.21.2020 20:26	U	1
m,p-Xylenes	179601-23-1	<0.000800	0.000800	mg/kg	05.21.2020 20:26	U	1
o-Xylene	95-47-6	<0.000400	0.000400	mg/kg	05.21.2020 20:26	U	1
Total Xylenes	1330-20-7	<0.000400	0.000400	mg/kg	05.21.2020 20:26	U	1
Total BTEX		<0.000400	0.000400	mg/kg	05.21.2020 20:26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	05.21.2020 20:26		
1,4-Difluorobenzene	540-36-3	108	%	70-130	05.21.2020 20:26		



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **North-2**
Lab Sample Id: 662293-012

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3126844

Prep Method: E300P

% Moisture:

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	28.5	5.02	mg/kg	05.23.2020 15:50		1

Analytical Method: TPH By SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3126886

Prep Method: SW8015P

% Moisture:

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.22.2020 16:04	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.22.2020 16:04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.22.2020 16:04	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.22.2020 16:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-130	05.22.2020 16:04	
o-Terphenyl	84-15-1	91	%	70-130	05.22.2020 16:04	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **North-2**
Lab Sample Id: 662293-012

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000401	0.000401	mg/kg	05.21.2020 20:47	U	1
Toluene	108-88-3	<0.000401	0.000401	mg/kg	05.21.2020 20:47	U	1
Ethylbenzene	100-41-4	<0.000401	0.000401	mg/kg	05.21.2020 20:47	U	1
m,p-Xylenes	179601-23-1	<0.000802	0.000802	mg/kg	05.21.2020 20:47	U	1
o-Xylene	95-47-6	<0.000401	0.000401	mg/kg	05.21.2020 20:47	U	1
Total Xylenes	1330-20-7	<0.000401	0.000401	mg/kg	05.21.2020 20:47	U	1
Total BTEX		<0.000401	0.000401	mg/kg	05.21.2020 20:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	117	%	70-130	05.21.2020 20:47	
1,4-Difluorobenzene	540-36-3	111	%	70-130	05.21.2020 20:47	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **North-3**
Lab Sample Id: 662293-013

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.83	5.00	mg/kg	05.23.2020 15:56		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	05.22.2020 16:26	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	05.22.2020 16:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.22.2020 16:26	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.22.2020 16:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-130	05.22.2020 16:26	
o-Terphenyl	84-15-1	79	%	70-130	05.22.2020 16:26	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **North-3**
Lab Sample Id: 662293-013

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000404	0.000404	mg/kg	05.21.2020 21:07	U	1
Toluene	108-88-3	<0.000404	0.000404	mg/kg	05.21.2020 21:07	U	1
Ethylbenzene	100-41-4	<0.000404	0.000404	mg/kg	05.21.2020 21:07	U	1
m,p-Xylenes	179601-23-1	<0.000808	0.000808	mg/kg	05.21.2020 21:07	U	1
o-Xylene	95-47-6	<0.000404	0.000404	mg/kg	05.21.2020 21:07	U	1
Total Xylenes	1330-20-7	<0.000404	0.000404	mg/kg	05.21.2020 21:07	U	1
Total BTEX		<0.000404	0.000404	mg/kg	05.21.2020 21:07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	65	%	70-130	05.21.2020 21:07	**	
1,4-Difluorobenzene	540-36-3	124	%	70-130	05.21.2020 21:07		



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **South-1**
Lab Sample Id: 662293-014

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3126844

Prep Method: E300P

% Moisture:

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1940	24.9	mg/kg	05.23.2020 16:13		5

Analytical Method: TPH By SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3126886

Prep Method: SW8015P

% Moisture:

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.22.2020 16:48	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.22.2020 16:48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.22.2020 16:48	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.22.2020 16:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	71	%	70-130	05.22.2020 16:48	
o-Terphenyl	84-15-1	82	%	70-130	05.22.2020 16:48	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **South-1**
Lab Sample Id: 662293-014

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000399	0.000399	mg/kg	05.21.2020 21:28	U	1
Toluene	108-88-3	<0.000399	0.000399	mg/kg	05.21.2020 21:28	U	1
Ethylbenzene	100-41-4	<0.000399	0.000399	mg/kg	05.21.2020 21:28	U	1
m,p-Xylenes	179601-23-1	<0.000798	0.000798	mg/kg	05.21.2020 21:28	U	1
o-Xylene	95-47-6	<0.000399	0.000399	mg/kg	05.21.2020 21:28	U	1
Total Xylenes	1330-20-7	<0.000399	0.000399	mg/kg	05.21.2020 21:28	U	1
Total BTEX		<0.000399	0.000399	mg/kg	05.21.2020 21:28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.21.2020 21:28		
1,4-Difluorobenzene	540-36-3	101	%	70-130	05.21.2020 21:28		



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **South-2**
Lab Sample Id: 662293-015

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.2	5.04	mg/kg	05.23.2020 16:19		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.22.2020 17:09	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.22.2020 17:09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.22.2020 17:09	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.22.2020 17:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-130	05.22.2020 17:09	
o-Terphenyl	84-15-1	94	%	70-130	05.22.2020 17:09	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **South-2**
Lab Sample Id: 662293-015

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000397	0.000397	mg/kg	05.21.2020 21:48	U	1
Toluene	108-88-3	<0.000397	0.000397	mg/kg	05.21.2020 21:48	U	1
Ethylbenzene	100-41-4	<0.000397	0.000397	mg/kg	05.21.2020 21:48	U	1
m,p-Xylenes	179601-23-1	<0.000794	0.000794	mg/kg	05.21.2020 21:48	U	1
o-Xylene	95-47-6	<0.000397	0.000397	mg/kg	05.21.2020 21:48	U	1
Total Xylenes	1330-20-7	<0.000397	0.000397	mg/kg	05.21.2020 21:48	U	1
Total BTEX		<0.000397	0.000397	mg/kg	05.21.2020 21:48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	05.21.2020 21:48		
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.21.2020 21:48		



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **South-3**
Lab Sample Id: 662293-016

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3126844

Prep Method: E300P

% Moisture:

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.4	4.95	mg/kg	05.23.2020 16:25		1

Analytical Method: TPH By SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3126886

Prep Method: SW8015P

% Moisture:

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	05.22.2020 17:31	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	05.22.2020 17:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.22.2020 17:31	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.22.2020 17:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	05.22.2020 17:31	
o-Terphenyl	84-15-1	94	%	70-130	05.22.2020 17:31	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **South-3**
Lab Sample Id: 662293-016

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000403	0.000403	mg/kg	05.21.2020 22:08	U	1
Toluene	108-88-3	<0.000403	0.000403	mg/kg	05.21.2020 22:08	U	1
Ethylbenzene	100-41-4	<0.000403	0.000403	mg/kg	05.21.2020 22:08	U	1
m,p-Xylenes	179601-23-1	<0.000806	0.000806	mg/kg	05.21.2020 22:08	U	1
o-Xylene	95-47-6	<0.000403	0.000403	mg/kg	05.21.2020 22:08	U	1
Total Xylenes	1330-20-7	<0.000403	0.000403	mg/kg	05.21.2020 22:08	U	1
Total BTEX		<0.000403	0.000403	mg/kg	05.21.2020 22:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	05.21.2020 22:08		
1,4-Difluorobenzene	540-36-3	106	%	70-130	05.21.2020 22:08		



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **East**
Lab Sample Id: 662293-017

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Tech: SPC

Analyst: SPC

Seq Number: 3126844

Prep Method: E300P

% Moisture:

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.7	4.97	mg/kg	05.23.2020 16:30		1

Analytical Method: TPH By SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3126886

Prep Method: SW8015P

% Moisture:

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.22.2020 18:14	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.22.2020 18:14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.22.2020 18:14	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.22.2020 18:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	05.22.2020 18:14	
o-Terphenyl	84-15-1	96	%	70-130	05.22.2020 18:14	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **East**
Lab Sample Id: 662293-017

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000401	0.000401	mg/kg	05.21.2020 23:31	U	1
Toluene	108-88-3	<0.000401	0.000401	mg/kg	05.21.2020 23:31	U	1
Ethylbenzene	100-41-4	<0.000401	0.000401	mg/kg	05.21.2020 23:31	U	1
m,p-Xylenes	179601-23-1	<0.000802	0.000802	mg/kg	05.21.2020 23:31	U	1
o-Xylene	95-47-6	<0.000401	0.000401	mg/kg	05.21.2020 23:31	U	1
Total Xylenes	1330-20-7	<0.000401	0.000401	mg/kg	05.21.2020 23:31	U	1
Total BTEX		<0.000401	0.000401	mg/kg	05.21.2020 23:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	05.21.2020 23:31	
4-Bromofluorobenzene	460-00-4	110	%	70-130	05.21.2020 23:31	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **West**
Lab Sample Id: 662293-018

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 05.22.2020 16:45

Basis: Wet Weight

Seq Number: 3126844

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.8	4.97	mg/kg	05.23.2020 16:36		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.22.2020 11:00

Basis: Wet Weight

Seq Number: 3126886

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.22.2020 18:36	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.22.2020 18:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.22.2020 18:36	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.22.2020 18:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-130	05.22.2020 18:36	
o-Terphenyl	84-15-1	88	%	70-130	05.22.2020 18:36	



Certificate of Analytical Results 662293

COG Operating LLC, Artesia, NM

Cabo Wabo 24 Fed. 5H

Sample Id: **West**
Lab Sample Id: 662293-018

Matrix: Soil
Date Collected: 05.19.2020 00:00

Date Received: 05.21.2020 15:46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.21.2020 16:30

Basis: Wet Weight

Seq Number: 3126698

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000398	0.000398	mg/kg	05.21.2020 23:51	U	1
Toluene	108-88-3	<0.000398	0.000398	mg/kg	05.21.2020 23:51	U	1
Ethylbenzene	100-41-4	<0.000398	0.000398	mg/kg	05.21.2020 23:51	U	1
m,p-Xylenes	179601-23-1	<0.000797	0.000797	mg/kg	05.21.2020 23:51	U	1
o-Xylene	95-47-6	<0.000398	0.000398	mg/kg	05.21.2020 23:51	U	1
Total Xylenes	1330-20-7	<0.000398	0.000398	mg/kg	05.21.2020 23:51	U	1
Total BTEX		<0.000398	0.000398	mg/kg	05.21.2020 23:51	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	05.21.2020 23:51		
4-Bromofluorobenzene	460-00-4	87	%	70-130	05.21.2020 23:51		



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

Cabo Wabo 24 Fed. 5H

Analytical Method: Chloride by EPA 300

Seq Number: 3126844

MB Sample Id: 7703986-1-BLK

Matrix: Solid

LCS Sample Id: 7703986-1-BKS

Prep Method: E300P

Date Prep: 05.22.2020

LCSD Sample Id: 7703986-1-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	257	103	265	106	90-110	3	20	mg/kg	05.23.2020 14:02	

Analytical Method: Chloride by EPA 300

Seq Number: 3126844

Parent Sample Id: 662293-001

Matrix: Soil

MS Sample Id: 662293-001 S

Prep Method: E300P

Date Prep: 05.22.2020

MSD Sample Id: 662293-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	19.6	252	303	112	285	105	90-110	6	20	mg/kg	05.23.2020 14:19	X

Analytical Method: Chloride by EPA 300

Seq Number: 3126844

Parent Sample Id: 662293-011

Matrix: Soil

MS Sample Id: 662293-011 S

Prep Method: E300P

Date Prep: 05.22.2020

MSD Sample Id: 662293-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11.6	253	275	104	273	103	90-110	7	20	mg/kg	05.23.2020 16:53	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3126886

MB Sample Id: 7703940-1-BLK

Matrix: Solid

LCS Sample Id: 7703940-1-BKS

Prep Method: SW8015P

Date Prep: 05.22.2020

LCSD Sample Id: 7703940-1-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	839	84	831	83	70-130	1	20	mg/kg	05.22.2020 12:47	
Diesel Range Organics	<50.0	1000	848	85	851	85	70-130	0	20	mg/kg	05.22.2020 12:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		82		81		70-130	%	05.22.2020 12:47
o-Terphenyl	100		95		89		70-130	%	05.22.2020 12:47

Analytical Method: TPH By SW8015 Mod

Seq Number: 3126886

Matrix: Solid

MB Sample Id: 7703940-1-BLK

Prep Method: SW8015P

Date Prep: 05.22.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.22.2020 12:25	

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

Cabo Wabo 24 Fed. 5H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3126886

Parent Sample Id: 662293-001

Matrix: Soil

MS Sample Id: 662293-001 S

Prep Method: SW8015P

Date Prep: 05.22.2020

MSD Sample Id: 662293-001 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	879	88	856	86	70-130	3	20	mg/kg	05.22.2020 13:52	
Diesel Range Organics	<49.9	997	877	88	889	89	70-130	1	20	mg/kg	05.22.2020 13:52	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	83		93		70-130	%	05.22.2020 13:52
o-Terphenyl	92		101		70-130	%	05.22.2020 13:52

Analytical Method: BTEX by EPA 8021B

Seq Number: 3126698

MB Sample Id: 7703894-1-BLK

Matrix: Solid

LCS Sample Id: 7703894-1-BKS

Prep Method: SW5035A

Date Prep: 05.21.2020

LCSD Sample Id: 7703894-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000400	0.0200	0.0215	108	0.0214	107	70-130	0	35	mg/kg	05.21.2020 17:02	
Toluene	<0.000400	0.0200	0.0219	110	0.0215	108	70-130	2	35	mg/kg	05.21.2020 17:02	
Ethylbenzene	<0.000400	0.0200	0.0206	103	0.0201	101	70-130	2	35	mg/kg	05.21.2020 17:02	
m,p-Xylenes	<0.000800	0.0400	0.0418	105	0.0404	101	70-130	3	35	mg/kg	05.21.2020 17:02	
o-Xylene	<0.000400	0.0200	0.0201	101	0.0195	98	70-130	3	35	mg/kg	05.21.2020 17:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		107		107		70-130	%	05.21.2020 17:02
4-Bromofluorobenzene	99		104		101		70-130	%	05.21.2020 17:02

Analytical Method: BTEX by EPA 8021B

Seq Number: 3126698

Parent Sample Id: 662293-001

Matrix: Soil

MS Sample Id: 662293-001 S

Prep Method: SW5035A

Date Prep: 05.21.2020

MSD Sample Id: 662293-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000400	0.0200	0.0199	100	0.0177	88	70-130	12	35	mg/kg	05.21.2020 17:43	
Toluene	<0.000400	0.0200	0.0198	99	0.0175	87	70-130	12	35	mg/kg	05.21.2020 17:43	
Ethylbenzene	<0.000400	0.0200	0.0179	90	0.0157	78	70-130	13	35	mg/kg	05.21.2020 17:43	
m,p-Xylenes	<0.000800	0.0400	0.0362	91	0.0317	79	70-130	13	35	mg/kg	05.21.2020 17:43	
o-Xylene	<0.000400	0.0200	0.0174	87	0.0151	75	70-130	14	35	mg/kg	05.21.2020 17:43	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		106		70-130	%	05.21.2020 17:43
4-Bromofluorobenzene	103		99		70-130	%	05.21.2020 17:43

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

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

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

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

Analysis Request of Chain of Custody Record



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

002293

Page

of

2

Client Name:		COG		Site Manager:		Ike Tavaréz	
Project Name:		Cabo Wabo 24 Fed. SH					
Project Location: (county, state)		Eddy Co. N.M.		Project #:			
Invoice to:		COG - Ike Tavaréz					
Receiving Laboratory:		Xenco		Sampler Signature:		Ike Tavaréz	
Comments:							

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS	FILTERED (Y/N)
		DATE	TIME	WATER	SOIL	HCL	HNO ₃		
44-5	0-1	5-19-20							
	2-2.5'								
	3-3.5'								
	4-4.5'								
	5-5.5'								
	6-6.5'								
	7-7.5'								
	8-8.5'								
	9-9.5'								
	10-10.5'								
	11-11.5'								
	12-12.5'								
	13-13.5'								
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	93-93.5'								
	94-94.5'								
	95-95.5'								
	96-96.5'								
	97-97.5'								
	98-98.5'								
	99-99.5'								
	100-100.5'								

LAB USE ONLY	REMARKS:	ANALYSIS REQUEST (Circle or Specify Method No.)	
		☒ BTEX 8021B ☒ BTEX 8260B ☒ TPH TX1005 (Ext to C35) ☒ TPH 8015M (GRO - DRO - MRO) ☐ PAH 8270C ☐ Total Metals Ag As Ba Cd Cr Pb Se Hg ☐ TCLP Metals Ag As Ba Cd Cr Pb Se Hg ☐ TCLP Volatiles ☐ TCLP Semi Volatiles ☐ RCI ☐ GC/MS Vol. 8260B / 624 ☐ GC/MS Semi. Vol. 8270C/625 ☐ PCB's 8082 / 608 ☐ NORM ☐ PLM (Asbestos) ☒ Chloride ☐ Chloride Sulfate TDS ☐ General Water Chemistry (see attached list) ☐ Anion/Cation Balance	
Sample Temperature			
☐ RUSH: Same Day 24 hr 48 hr 72 hr			
☐ Rush Charges Authorized			
☐ Special Report Limits or TRRP Report			

ORIGINAL COPY

Analysis Request of Chain of Custody Record

Page

2 of 2



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

Client Name:

COG

Site Manager:

Ike Tavaréz

Project Name:

C-130 14th 24th St (8-2-13)

Project Location:
(county, state)

Project #:

Invoice to:

COG - Ike Tavaréz

Receiving Laboratory:

Xenco

Sampler Signature:

Ike Tavaréz

Comments:

LAB #
(LAB USE ONLY)

SAMPLE IDENTIFICATION

SAMPLING

YEAR:

DATE

TIME

MATRIX

PRESERVATIVE METHOD

WATER
SOILHCL
HNO₃
ICE

CONTAINERS

FILTERED (Y/N)

RTX 8021B BTEX 8260B

TPH TX1005 (Ext to C35)

TPH 8015M (GRO-DRO-MRO)

PAH 8270C

Total Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8260B / 624

GC/MS Semi. Vol. 8270C/625

PCB's 8082 / 608

NORM

PLM (Asbestos)

Chloride

Chloride Sulfate TDS

General Water Chemistry (see attached list)

Anion/Cation Balance

Hold

ANALYSIS REQUEST

(Circle or Specify Method No.)

Surrendered by:

Date: Time:

Received by:

Date: Time:

Surrendered by:

Date: Time:

Received by:

Date: Time:

Surrendered by:

Date: Time:

Received by:

Date: Time:

LAB USE ONLY

REMARKS:

Sample Temperature

☐ 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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 05.21.2020 03.46.00 PM

Work Order #: 662293

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)?	.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes BTEX was in bulk container
#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: 05.21.2020

Checklist reviewed by:



Jessica Kramer

Date: 05.22.2020

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 10900

CONDITIONS OF APPROVAL

Operator:	COG OPERATING LLC	600 W Illinois Ave	Midland, TX79701	OGRID:	229137	Action Number:	10900	Action Type:	C-141
OCD Reviewer									Condition
ceads									None