



August 6, 2020

Mike Bratcher  
Oil Conservation Division, District 2  
811 S First St.  
Artesia, NM 88210

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

**Closure Report**  
**Horned Owl Federal #003H**  
**API#: 30-015-42502**  
**Tracking#: NRM2010731078**  
**DOR: March 31, 2020**  
**GPS: 32.0199738 -104.243515**  
**Unit Letter B, Section 25, Township 26 South, Range 26 East**  
**Eddy County, New Mexico**

To Whom It May Concern,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred at the Horned Owl Federal #003H. The release was located in Unit Letter B, Section 25, Township 26 South and Range 26 East in Eddy County, New Mexico. More specifically the latitude and longitude for the release are 32.0199738 North and -104.243515 West.

## **BACKGROUND**

The release was discovered on March 31, 2020 and a C-141 initial report was submitted to the New Mexico Oil Conservation Division (NMOCD) and the Bureau of Land Management (BLM). A flowline rupture resulted in a release of approximately fifteen (15) barrels (bbls) of produced water. The fluid impacted the pasture adjacent to the well pad.

## GROUNDWATER AND REGULATORY FRAMEWORK

According to the United States Geological Survey (USGS) groundwater in the project vicinity is approximately thirty-six (36) feet below ground surface (BGS). The water well information is shown in Appendix B.

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

### General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
High Karst Potential	>100 feet

### 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

## REMEDIAL ACTIONS

- The impacted area was excavated to depths of two and one-half (2.5) to four (4) feet BGS. The excavation depths are outlined in the attached site diagram.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Confirmation soil samples were taken from bottom and sidewalls of the excavation per NMAC 19.15.29.
- The site was backfilled with clean “like” material and contoured to match the surrounding terrain.

## **SITE RECLAMATION AND RESTORATION**

Per NMED 19.15.29.13 reclamation of the pasture area has been performed by removing the impacted soil containing chloride concentrations greater than 600 mg/kg within the first four (4) feet BGS. Approximately six-hundred and twenty-seven (627) cubic yards of material was removed and hauled to an NMOCD approved solid waste disposal facility. Once excavated, soil samples were collected from the bottom and sidewalls of the excavation to confirm the removal of impacted soil greater than 600 mg/kg of chlorides. The backfill material was non-contaminated with concentrations below 600 mg/kg of chlorides. The surface was left in a rough condition to approximate natural surface deviations. The site will be mechanically seeded with the BLM #4 seed mixture once proper seasonal conditions exist.

## **CLOSURE REQUEST**

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the Bureau of Land Management grant closure approval for the Horned Owl Federal #003H incident that occurred on March 31, 2020.

Should you have any questions or concerns please do not hesitate to contact me.

Sincerely,

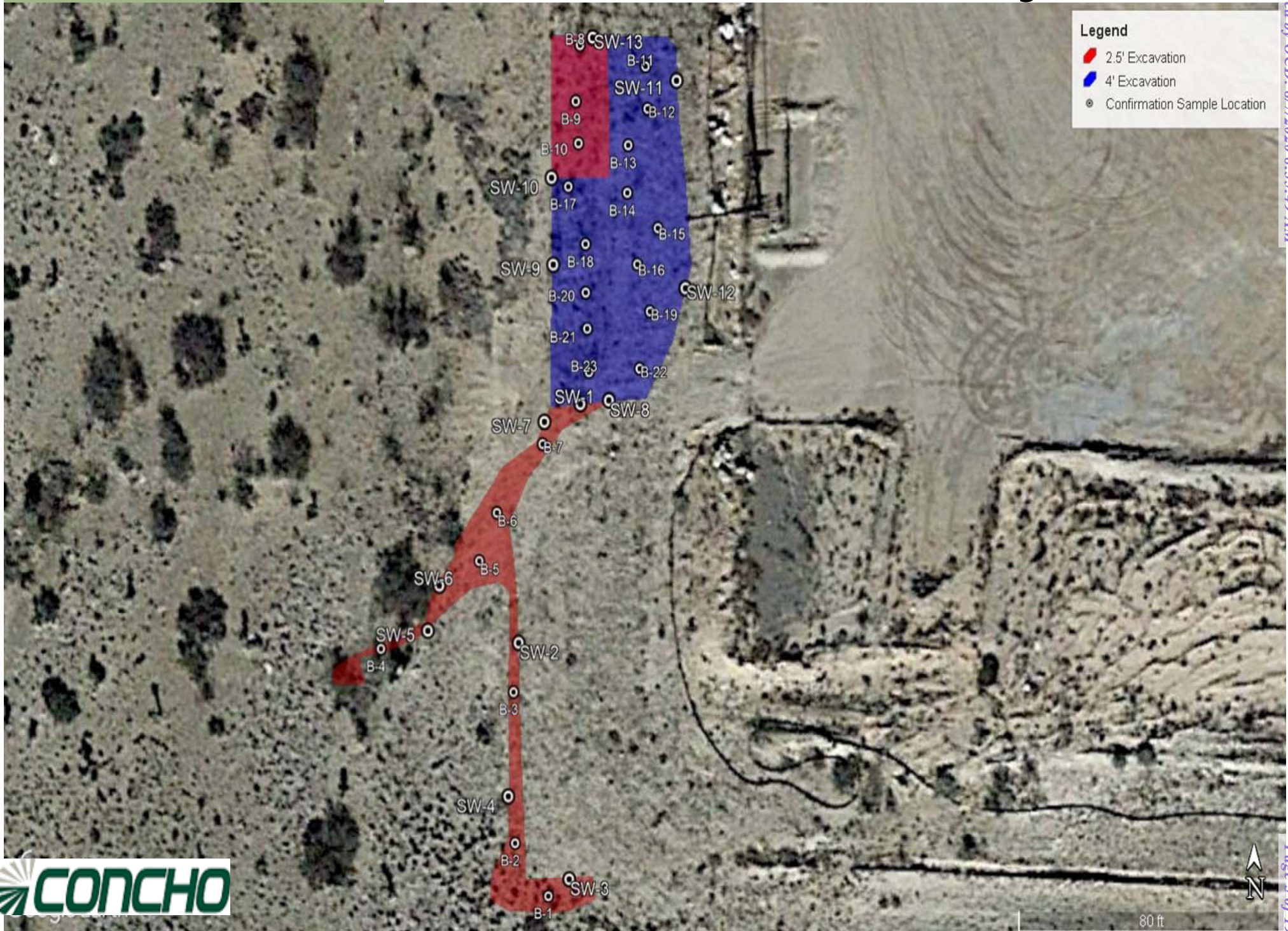


Sheldon L. Hitchcock  
HSE Coordinator  
[slhitchcock@concho.com](mailto:slhitchcock@concho.com)

# FIGURES



# Horned Owl Federal #003H



# TABLES

**Table 1**  
**COG Operating LLC.**  
**Horned Owl Federal #003H**  
**Eddy County, New Mexico**

Sample ID	Sample Depth (ft)	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			
NMOCD RRAL Limits (mg/kg)					-	-	-	100	-	-	100	10	50	600
BTTM-1	2.5	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	75.9
BTTM-2	2.5	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	<10.0
BTTM-3	2.5	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	89.3
BTTM-4	2.5	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	220.0
BTTM-5	2.5	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	22.1
BTTM-6	2.5	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	150.0
BTTM-7	2.5	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	183.0
BTTM-8	2.5	5/18/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	95.1
BTTM-9	2.5	5/18/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	96.0
BTTM-10	2.5	5/18/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	104.0
BTTM-11	2.5	5/18/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	1,810.0
BTTM-12	2.5	5/18/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	1,040.0
BTTM-13	2.5	5/18/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	2,890.0
BTTM-14	2.5	5/18/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	1,220.0
BTTM-15	2.5	5/18/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	889.0
BTTM-16	2.5	5/18/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	757.0
BTTM-17	2.5	5/18/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	557.0
BTTM-18	4	7/22/2020	X		#	#	#	0.0	#	#	0.0	#	#	63.5
BTTM-19	4	7/22/2020	X		#	#	#	0.0	#	#	0.0	#	#	64.6
BTTM-20	4	7/22/2020	X		#	#	#	0.0	#	#	0.0	#	#	62.7
BTTM-21	4	7/22/2020	X		#	#	#	0.0	#	#	0.0	#	#	64.4
BTTM-22	4	7/22/2020	X		#	#	#	0.0	#	#	0.0	#	#	66.9
BTTM-23	4	7/22/2020	X		#	#	#	0.0	#	#	0.0	#	#	61.6
SW-1	N/A	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	137.0
SW-2	N/A	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	230.0
SW-3	N/A	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	320.0
SW-4	N/A	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	17.4
SW-5	N/A	4/30/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	929.0
SW-6	N/A	4/30/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	856.0
SW-7	N/A	4/30/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	420.0
SW-8	N/A	7/1/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	157.0
SW-9	N/A	7/1/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	61.7
SW-10	N/A	7/1/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	208.0
SW-11	N/A	7/1/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	30.9
SW-12	N/A	7/1/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	<49.7
SW-13	N/A	7/22/2020		X	<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	636.0
SW-5	N/A	5/7/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	482.0
SW-6	N/A	5/7/2020	X		<50	<50	<50	0.0	<50	<50	0.0	<0.002	<0.002	413.0
SW-13	N/A	7/29/2020	X		#	#	#	0.0	#	#	0.0	#	#	48.3
BTTM-11	4	7/1/2020	X		#	#	#	0.0	#	#	0.0	#	#	275.0

Table 1  
COG Operating LLC.  
Horned Owl Federal #003H  
Eddy County, New Mexico

Sample ID	Sample Depth (ft)	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
BTTM-12	4	7/1/2020	X		#	#	#	0.0	#	#	0.0	#	#	256.0
BTTM-13	4	7/1/2020	X		#	#	#	0.0	#	#	0.0	#	#	295.0
BTTM-14	4	7/1/2020	X		#	#	#	0.0	#	#	0.0	#	#	580.0
BTTM-15	4	7/1/2020	X		#	#	#	0.0	#	#	0.0	#	#	121.0
BTTM-16	4	7/1/2020	X		#	#	#	0.0	#	#	0.0	#	#	172.0
BTTM-17	4	7/1/2020	X		#	#	#	0.0	#	#	0.0	#	#	168.0

(#) Not Analyzed



# APPENDIX A

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural  
Resources 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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> 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?  <input type="checkbox"/> Yes <input type="checkbox"/> 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*

<input type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input type="checkbox"/> 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>Sheldon Nitan</u>	Date: _____
email: _____	Telephone: _____
<b><u>OCD Only</u></b>	
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?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> 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: Sheldon Nitan 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: Sheldon Nitan Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

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

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

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

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

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: Sheldon Hittman Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

### OCD Only

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

# APPENDIX B



Legend

150

100

50

1

USA Flood Risk

100 Year Flood Areas

1.0% Annual chance

1.0% Annual chance within channel

1.0% Annual chance - Future conditions

1.0% Annual chance - shallow/ponding

1.0% Annual chance - shallow/sheeting

1.0% Annual chance - Storm waves

1.0% Annual chance - Storm-induced velocity wave action

0.2 - 1.0% Annual chance

0.2 - 1.0% Annual chance - Protected by levee

0.2% Annual chance

Possible, but undetermined chance

Area not included

Open water

COG - Environmental

Environmental

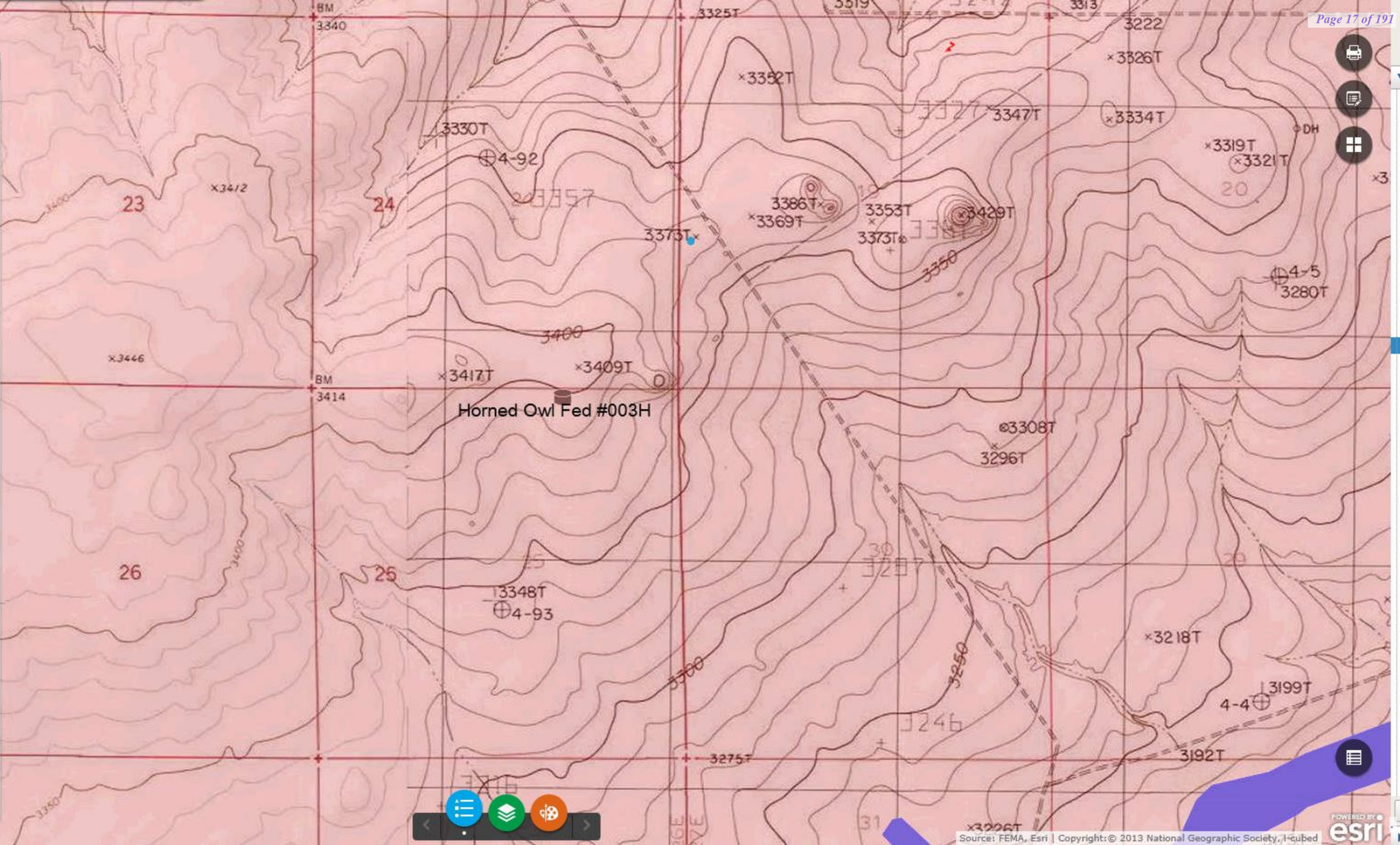
Mine Workings

Karst Occurance Areas

High

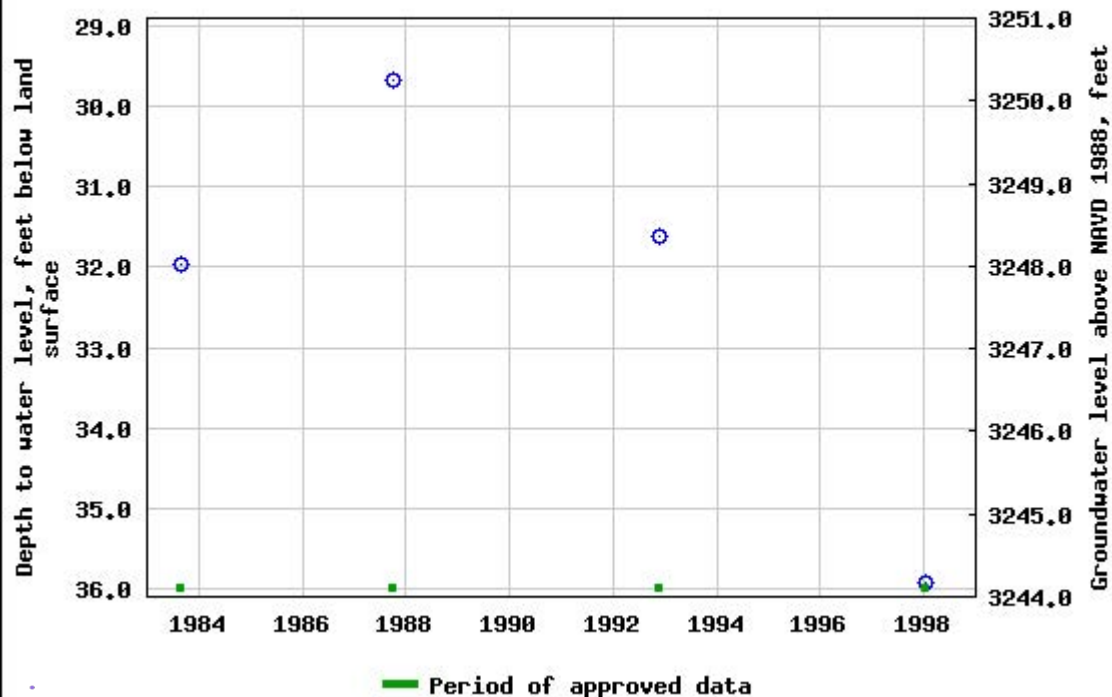
Low

Medium





## USGS 320244104161501 26S.26E.15.24444



# APPENDIX C



# Certificate of Analysis Summary 660414

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Fri 05.01.2020 12:15

Report Date: 05.04.2020 15:36

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	660414-001	660414-002	660414-003	660414-004	660414-005	660414-006
	<i>Field Id:</i>	Bttm-1	Bttm-2	Bttm-3	Bttm-4	Bttm-5	Bttm-6
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.30.2020 09:50	04.30.2020 09:55	04.30.2020 10:00	04.30.2020 10:05	04.30.2020 10:10	04.30.2020 10:15
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	05.01.2020 16:33	05.01.2020 16:33	05.01.2020 16:33	05.01.2020 16:33	05.01.2020 16:33	05.01.2020 16:33
	<i>Analyzed:</i>	05.02.2020 00:52	05.02.2020 01:13	05.02.2020 01:34	05.02.2020 01:56	05.02.2020 02:17	05.02.2020 02:39
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00401 0.00401	<0.00404 0.00404	<0.00398 0.00398	<0.00399 0.00399	<0.00401 0.00401	<0.00398 0.00398
o-Xylene		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	05.01.2020 14:30	05.01.2020 14:30	05.01.2020 14:30	05.01.2020 14:30	05.01.2020 14:30	05.01.2020 14:30
	<i>Analyzed:</i>	05.01.2020 15:02	05.01.2020 17:23	05.01.2020 15:24	05.01.2020 15:30	05.01.2020 17:29	05.01.2020 15:53
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		75.9 49.7	<10.0 10.0	89.3 49.5	220 49.5	22.1 9.96	150 49.8
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	05.01.2020 14:00	05.01.2020 14:00	05.01.2020 15:00	05.01.2020 15:00	05.01.2020 15:00	05.01.2020 16:00
	<i>Analyzed:</i>	05.01.2020 14:10	05.01.2020 14:10	05.01.2020 15:54	05.01.2020 16:15	05.01.2020 16:36	05.01.2020 16:56
	<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	<50.1 50.1	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.2 50.2
Diesel Range Organics		<49.8 49.8	<50.1 50.1	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<50.1 50.1	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.2 50.2
Total TPH		<49.8 49.8	<50.1 50.1	<50.2 50.2	<50.2 50.2	<50.1 50.1	<50.2 50.2

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

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

Jessica Kramer  
Project Manager





# Certificate of Analysis Summary 660414

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Fri 05.01.2020 12:15

Report Date: 05.04.2020 15:36

Project Manager: Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b>	660414-007					
	<b>Field Id:</b>	Bttm-7					
	<b>Depth:</b>						
	<b>Matrix:</b>	SOIL					
	<b>Sampled:</b>	04.30.2020 10:20					
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b>	05.01.2020 16:33					
	<b>Analyzed:</b>	05.02.2020 03:00					
	<b>Units/RL:</b>	mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00401 0.00401					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
<b>Chloride by EPA 300</b>	<b>Extracted:</b>	05.01.2020 14:30					
	<b>Analyzed:</b>	05.01.2020 15:58					
	<b>Units/RL:</b>	mg/kg RL					
Chloride		183 50.1					
<b>TPH By SW8015 Mod</b>	<b>Extracted:</b>	05.01.2020 16:00					
	<b>Analyzed:</b>	05.01.2020 17:17					
	<b>Units/RL:</b>	mg/kg RL					
Gasoline Range Hydrocarbons		<50.2 50.2					
Diesel Range Organics		<50.2 50.2					
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2					
Total TPH		<50.2 50.2					

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

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

Jessica Kramer  
Project Manager



# Analytical Report 660414

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**05.04.2020**

Collected By: Client

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

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

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

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



05.04.2020

Project Manager: **Sheldon Hitchcock**  
**COG Operating LLC**  
2407 Pecos Avenue  
Artesia, NM 88210

Reference: XENCO Report No(s): **660414**  
**Horned Owl Fed #3**  
Project Address: Eddy, NM

**Sheldon Hitchcock:**

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) 660414. 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. 660414 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'.

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**Jessica Kramer**  
Project Manager

*A Small Business and Minority Company*

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

**Sample Cross Reference 660414****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Bttm-1	S	04.30.2020 09:50		660414-001
Bttm-2	S	04.30.2020 09:55		660414-002
Bttm-3	S	04.30.2020 10:00		660414-003
Bttm-4	S	04.30.2020 10:05		660414-004
Bttm-5	S	04.30.2020 10:10		660414-005
Bttm-6	S	04.30.2020 10:15		660414-006
Bttm-7	S	04.30.2020 10:20		660414-007



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Horned Owl Fed #3*

Project ID:

Work Order Number(s): 660414

Report Date: 05.04.2020

Date Received: 05.01.2020

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**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-1**  
Lab Sample Id: 660414-001

Matrix: Soil  
Date Collected: 04.30.2020 09:50

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124858

Prep Method: E300P

% Moisture:

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	75.9	49.7	mg/kg	05.01.2020 15:02		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124868

Prep Method: SW8015P

% Moisture:

Date Prep: 05.01.2020 14:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	05.01.2020 14:10	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	05.01.2020 14:10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.01.2020 14:10	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.01.2020 14:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	05.01.2020 14:10	
o-Terphenyl	84-15-1	98	%	70-135	05.01.2020 14:10	





# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-1**  
Lab Sample Id: 660414-001

Matrix: Soil  
Date Collected: 04.30.2020 09:50

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.02.2020 00:52	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.02.2020 00:52	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.02.2020 00:52	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.02.2020 00:52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.02.2020 00:52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.02.2020 00:52	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.02.2020 00:52	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	115	%	70-130	05.02.2020 00:52		
4-Bromofluorobenzene	460-00-4	109	%	70-130	05.02.2020 00:52		



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-2**  
Lab Sample Id: 660414-002

Matrix: Soil  
Date Collected: 04.30.2020 09:55

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	05.01.2020 17:23	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 14:00

Basis: Wet Weight

Seq Number: 3124931

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	05.01.2020 14:10	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	05.01.2020 14:10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	05.01.2020 14:10	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	05.01.2020 14:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	05.01.2020 14:10	
o-Terphenyl	84-15-1	114	%	70-135	05.01.2020 14:10	



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-2**  
Lab Sample Id: 660414-002

Matrix: Soil  
Date Collected: 04.30.2020 09:55

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.02.2020 01:13	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.02.2020 01:13	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.02.2020 01:13	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	05.02.2020 01:13	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.02.2020 01:13	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.02.2020 01:13	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.02.2020 01:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	112	%	70-130	05.02.2020 01:13	
1,4-Difluorobenzene	540-36-3	115	%	70-130	05.02.2020 01:13	



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-3**  
Lab Sample Id: 660414-003

Matrix: Soil  
Date Collected: 04.30.2020 10:00

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>89.3</b>	49.5	mg/kg	05.01.2020 15:24		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 15:00

Basis: Wet Weight

Seq Number: 3124868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	05.01.2020 15:54	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	05.01.2020 15:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	05.01.2020 15:54	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	05.01.2020 15:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	05.01.2020 15:54	
o-Terphenyl	84-15-1	110	%	70-135	05.01.2020 15:54	



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-3**  
Lab Sample Id: 660414-003

Matrix: Soil  
Date Collected: 04.30.2020 10:00

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.02.2020 01:34	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.02.2020 01:34	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.02.2020 01:34	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.02.2020 01:34	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.02.2020 01:34	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.02.2020 01:34	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.02.2020 01:34	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	109	%	70-130	05.02.2020 01:34		
1,4-Difluorobenzene	540-36-3	113	%	70-130	05.02.2020 01:34		



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-4**  
Lab Sample Id: 660414-004

Matrix: Soil  
Date Collected: 04.30.2020 10:05

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	220	49.5	mg/kg	05.01.2020 15:30		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 15:00

Basis: Wet Weight

Seq Number: 3124868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	05.01.2020 16:15	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	05.01.2020 16:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	05.01.2020 16:15	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	05.01.2020 16:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	05.01.2020 16:15	
o-Terphenyl	84-15-1	110	%	70-135	05.01.2020 16:15	





# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-4**  
Lab Sample Id: 660414-004

Matrix: Soil  
Date Collected: 04.30.2020 10:05

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.02.2020 01:56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.02.2020 01:56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.02.2020 01:56	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.02.2020 01:56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.02.2020 01:56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.02.2020 01:56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.02.2020 01:56	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	107	%	70-130	05.02.2020 01:56		
1,4-Difluorobenzene	540-36-3	114	%	70-130	05.02.2020 01:56		



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-5**  
Lab Sample Id: 660414-005

Matrix: Soil  
Date Collected: 04.30.2020 10:10

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.1	9.96	mg/kg	05.01.2020 17:29		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 15:00

Basis: Wet Weight

Seq Number: 3124868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	05.01.2020 16:36	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	05.01.2020 16:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	05.01.2020 16:36	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	05.01.2020 16:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	05.01.2020 16:36	
o-Terphenyl	84-15-1	104	%	70-135	05.01.2020 16:36	



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-5**  
Lab Sample Id: 660414-005

Matrix: Soil  
Date Collected: 04.30.2020 10:10

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.02.2020 02:17	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.02.2020 02:17	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.02.2020 02:17	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.02.2020 02:17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.02.2020 02:17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.02.2020 02:17	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.02.2020 02:17	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	108	%	70-130	05.02.2020 02:17		
1,4-Difluorobenzene	540-36-3	114	%	70-130	05.02.2020 02:17		



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-6**  
Lab Sample Id: 660414-006

Matrix: Soil  
Date Collected: 04.30.2020 10:15

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124858

Prep Method: E300P

% Moisture:

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	150	49.8	mg/kg	05.01.2020 15:53		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124868

Prep Method: SW8015P

% Moisture:

Date Prep: 05.01.2020 16:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	05.01.2020 16:56	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	05.01.2020 16:56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	05.01.2020 16:56	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	05.01.2020 16:56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	05.01.2020 16:56	
o-Terphenyl	84-15-1	120	%	70-135	05.01.2020 16:56	



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-6**  
Lab Sample Id: 660414-006

Matrix: Soil  
Date Collected: 04.30.2020 10:15

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.02.2020 02:39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.02.2020 02:39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.02.2020 02:39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.02.2020 02:39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.02.2020 02:39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.02.2020 02:39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.02.2020 02:39	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	110	%	70-130	05.02.2020 02:39		
1,4-Difluorobenzene	540-36-3	115	%	70-130	05.02.2020 02:39		



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-7**  
Lab Sample Id: 660414-007

Matrix: Soil  
Date Collected: 04.30.2020 10:20

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124858

Prep Method: E300P

% Moisture:

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	183	50.1	mg/kg	05.01.2020 15:58		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124868

Prep Method: SW8015P

% Moisture:

Date Prep: 05.01.2020 16:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	05.01.2020 17:17	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	05.01.2020 17:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	05.01.2020 17:17	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	05.01.2020 17:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	05.01.2020 17:17	
o-Terphenyl	84-15-1	113	%	70-135	05.01.2020 17:17	



# Certificate of Analytical Results 660414

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm-7**  
Lab Sample Id: 660414-007

Matrix: Soil  
Date Collected: 04.30.2020 10:20

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.02.2020 03:00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.02.2020 03:00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.02.2020 03:00	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.02.2020 03:00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.02.2020 03:00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.02.2020 03:00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.02.2020 03:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	107	%	70-130	05.02.2020 03:00	
1,4-Difluorobenzene	540-36-3	115	%	70-130	05.02.2020 03:00	



## 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

Horned Owl Fed #3

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

MB Sample Id: 7702536-1-BLK

Matrix: Solid

LCS Sample Id: 7702536-1-BKS

Prep Method: E300P

Date Prep: 05.01.2020

LCSD Sample Id: 7702536-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	260	104	260	104	90-110	0	20	mg/kg	05.01.2020 14:51	

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

Parent Sample Id: 660414-001

Matrix: Soil

MS Sample Id: 660414-001 S

Prep Method: E300P

Date Prep: 05.01.2020

MSD Sample Id: 660414-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	75.9	199	256	91	263	94	90-110	3	20	mg/kg	05.01.2020 15:07	

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

Parent Sample Id: 660418-001

Matrix: Soil

MS Sample Id: 660418-001 S

Prep Method: E300P

Date Prep: 05.01.2020

MSD Sample Id: 660418-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	17.4	200	216	99	217	100	90-110	0	20	mg/kg	05.01.2020 16:27	

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3124868

MB Sample Id: 7702583-1-BLK

Matrix: Solid

LCS Sample Id: 7702583-1-BKS

Prep Method: SW8015P

Date Prep: 05.01.2020

LCSD Sample Id: 7702583-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1070	107	846	85	70-135	23	35	mg/kg	05.01.2020 12:30	
Diesel Range Organics	<50.0	1000	1090	109	947	95	70-135	14	35	mg/kg	05.01.2020 12:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		134		110		70-135	%	05.01.2020 12:30
o-Terphenyl	99		122		106		70-135	%	05.01.2020 12:30

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

MB Sample Id: 7702620-1-BLK

Matrix: Solid

LCS Sample Id: 7702620-1-BKS

Prep Method: SW8015P

Date Prep: 05.01.2020

LCSD Sample Id: 7702620-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1070	107	846	85	70-135	23	35	mg/kg	05.01.2020 12:30	
Diesel Range Organics	<50.0	1000	1090	109	947	95	70-135	14	35	mg/kg	05.01.2020 12:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		134		110		70-135	%	05.01.2020 12:30
o-Terphenyl	99		126		106		70-135	%	05.01.2020 12:30

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

Horned Owl Fed #3

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124868

Matrix: Solid

Prep Method: SW8015P

Date Prep: 05.01.2020

MB Sample Id: 7702583-1-BLK

## Parameter

Motor Oil Range Hydrocarbons (MRO)

MB  
Result

&lt;50.0

Units

mg/kg

Analysis  
Date

05.01.2020 12:09

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

Matrix: Solid

Prep Method: SW8015P

Date Prep: 05.01.2020

MB Sample Id: 7702620-1-BLK

## Parameter

Motor Oil Range Hydrocarbons (MRO)

MB  
Result

&lt;50.0

Units

mg/kg

Analysis  
Date

05.01.2020 12:09

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124868

Matrix: Soil

Prep Method: SW8015P

Date Prep: 05.01.2020

Parent Sample Id: 660414-001

MS Sample Id: 660414-001 S

MSD Sample Id: 660414-001 SD

## Parameter

Gasoline Range Hydrocarbons

Parent  
Result

&lt;49.9

Spike  
Amount

998

MS  
Result

918

MS  
%Rec

92

MSD  
Result

902

MSD  
%Rec

90

Limits

70-135

%RPD

2

RPD  
Limit

35

Units

mg/kg

Analysis  
Date

05.01.2020 14:30

Flag

Diesel Range Organics

&lt;49.9

998

1030

103

1000

100

70-135

3

35

mg/kg

05.01.2020 14:30

## Surrogate

1-Chlorooctane

MS  
%Rec

120

MS  
FlagMSD  
%Rec

116

MSD  
Flag

Limits

70-135

Units

%

Analysis  
Date

05.01.2020 14:30

o-Terphenyl

121

113

70-135

%

05.01.2020 14:30

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

Matrix: Soil

Prep Method: SW8015P

Date Prep: 05.01.2020

Parent Sample Id: 660414-002

MS Sample Id: 660414-002 S

MSD Sample Id: 660414-002 SD

## Parameter

Gasoline Range Hydrocarbons

Parent  
Result

&lt;50.1

Spike  
Amount

1000

MS  
Result

900

MS  
%Rec

90

MSD  
Result

855

MSD  
%Rec

86

Limits

70-135

%RPD

5

RPD  
Limit

35

Units

mg/kg

Analysis  
Date

05.01.2020 14:30

Flag

Diesel Range Organics

&lt;50.1

1000

1010

101

946

95

70-135

7

35

mg/kg

05.01.2020 14:30

## Surrogate

1-Chlorooctane

MS  
%Rec

115

MS  
FlagMSD  
%Rec

124

MSD  
Flag

Limits

70-135

Units

%

Analysis  
Date

05.01.2020 14:30

o-Terphenyl

128

110

70-135

%

05.01.2020 14:30

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

Horned Owl Fed #3

Analytical Method: BTEX by EPA 8021B

Seq Number: 3124854

MB Sample Id: 7702535-1-BLK

Matrix: Solid

LCS Sample Id: 7702535-1-BKS

Prep Method: SW5035A

Date Prep: 05.01.2020

LCSD Sample Id: 7702535-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.107	107	0.115	115	70-130	7	35	mg/kg	05.01.2020 23:05	
Toluene	<0.00200	0.100	0.101	101	0.105	105	70-130	4	35	mg/kg	05.01.2020 23:05	
Ethylbenzene	<0.00200	0.100	0.0936	94	0.0969	97	71-129	3	35	mg/kg	05.01.2020 23:05	
m,p-Xylenes	<0.00400	0.200	0.184	92	0.190	95	70-135	3	35	mg/kg	05.01.2020 23:05	
o-Xylene	<0.00200	0.100	0.0954	95	0.0992	99	71-133	4	35	mg/kg	05.01.2020 23:05	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		106		109		70-130	%	05.01.2020 23:05
4-Bromofluorobenzene	109		99		101		70-130	%	05.01.2020 23:05

Analytical Method: BTEX by EPA 8021B

Seq Number: 3124854

Parent Sample Id: 660345-018

Matrix: Soil

MS Sample Id: 660345-018 S

Prep Method: SW5035A

Date Prep: 05.01.2020

MSD Sample Id: 660345-018 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	0.0958	96	0.113	112	70-130	16	35	mg/kg	05.02.2020 08:21	
Toluene	<0.00199	0.0996	0.0864	87	0.103	102	70-130	18	35	mg/kg	05.02.2020 08:21	
Ethylbenzene	<0.00199	0.0996	0.0809	81	0.0958	95	71-129	17	35	mg/kg	05.02.2020 08:21	
m,p-Xylenes	<0.00398	0.199	0.157	79	0.186	92	70-135	17	35	mg/kg	05.02.2020 08:21	
o-Xylene	<0.00199	0.0996	0.0820	82	0.0967	96	71-133	16	35	mg/kg	05.02.2020 08:21	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		109		70-130	%	05.02.2020 08:21
4-Bromofluorobenzene	99		99		70-130	%	05.02.2020 08:21

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

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

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

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

### Analysis Request of Chain of Custody Record



One Concho Center/600/1111 Illinois  
Avenue/Midland, Texas  
Tel (432) 683-7443

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200414

[illegible]

ORIGINAL COPY



**XENCO Laboratories****Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 05.01.2020 12.15.00 PM**Work Order #:** 660414**Acceptable Temperature Range:** 0 - 6 degC**Air and Metal samples Acceptable Range:** Ambient**Temperature Measuring device used :** T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

**Checklist completed by:**

Elizabeth McClellan

Date: 05.01.2020

**Checklist reviewed by:**

Jessica Kramer

Date: 05.04.2020



# Certificate of Analysis Summary 660416

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Fri 05.01.2020 12:15

Report Date: 05.04.2020 15:35

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	660416-001	660416-002	660416-003			
	<i>Field Id:</i>	SW-1	SW-2	SW-3			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	04.30.2020 10:30	04.30.2020 10:35	04.30.2020 10:40			
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	05.01.2020 16:33	05.01.2020 16:33	05.01.2020 16:33			
	<i>Analyzed:</i>	05.02.2020 03:21	05.02.2020 03:43	05.02.2020 04:47			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201			
Toluene		<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201			
Ethylbenzene		<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201			
m,p-Xylenes		<0.00398 0.00398	<0.00402 0.00402	<0.00402 0.00402			
o-Xylene		<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201			
Total Xylenes		<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201			
Total BTEX		<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201			
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	05.01.2020 14:30	05.01.2020 14:30	05.01.2020 14:30			
	<i>Analyzed:</i>	05.01.2020 16:04	05.01.2020 16:10	05.01.2020 16:15			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		137 49.9	230 49.4	320 50.1			
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	05.01.2020 15:00	05.01.2020 15:00	05.01.2020 15:00			
	<i>Analyzed:</i>	05.04.2020 12:28	05.04.2020 12:49	05.04.2020 13:10			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons		<49.9 49.9	<49.9 49.9	<50.3 50.3			
Diesel Range Organics		<49.9 49.9	<49.9 49.9	<50.3 50.3			
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<49.9 49.9	<50.3 50.3			
Total TPH		<49.9 49.9	<49.9 49.9	<50.3 50.3			

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

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

Jessica Kramer  
Project Manager



# Analytical Report 660416

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**05.04.2020**

Collected By: Client

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

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

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

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



05.04.2020

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **660416**

**Horned Owl Fed #3**

Project Address: Eddy, NM

**Sheldon Hitchcock:**

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) 660416. 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. 660416 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

---

**Jessica Kramer**

Project Manager

*A Small Business and Minority Company*

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





## Sample Cross Reference 660416

COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-1	S	04.30.2020 10:30		660416-001
SW-2	S	04.30.2020 10:35		660416-002
SW-3	S	04.30.2020 10:40		660416-003



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Horned Owl Fed #3*

Project ID:

Work Order Number(s): 660416

Report Date: 05.04.2020

Date Received: 05.01.2020

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**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None



# Certificate of Analytical Results 660416

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-1**  
Lab Sample Id: 660416-001

Matrix: Soil  
Date Collected: 04.30.2020 10:30

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	137	49.9	mg/kg	05.01.2020 16:04		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 15:00

Basis: Wet Weight

Seq Number: 3124931

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.04.2020 12:28	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.04.2020 12:28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.04.2020 12:28	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.04.2020 12:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	05.04.2020 12:28	
o-Terphenyl	84-15-1	96	%	70-135	05.04.2020 12:28	



# Certificate of Analytical Results 660416

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-1**  
Lab Sample Id: 660416-001

Matrix: Soil  
Date Collected: 04.30.2020 10:30

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.02.2020 03:21	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.02.2020 03:21	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.02.2020 03:21	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.02.2020 03:21	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.02.2020 03:21	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.02.2020 03:21	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.02.2020 03:21	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	111	%	70-130	05.02.2020 03:21		
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.02.2020 03:21		



# Certificate of Analytical Results 660416

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-2**  
Lab Sample Id: 660416-002

Matrix: Soil  
Date Collected: 04.30.2020 10:35

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	230	49.4	mg/kg	05.01.2020 16:10		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 15:00

Basis: Wet Weight

Seq Number: 3124931

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.04.2020 12:49	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.04.2020 12:49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.04.2020 12:49	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.04.2020 12:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	05.04.2020 12:49	
o-Terphenyl	84-15-1	88	%	70-135	05.04.2020 12:49	



# Certificate of Analytical Results 660416

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-2**  
Lab Sample Id: 660416-002

Matrix: Soil  
Date Collected: 04.30.2020 10:35

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.02.2020 03:43	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.02.2020 03:43	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.02.2020 03:43	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.02.2020 03:43	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.02.2020 03:43	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.02.2020 03:43	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.02.2020 03:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	70-130	05.02.2020 03:43	
1,4-Difluorobenzene	540-36-3	114	%	70-130	05.02.2020 03:43	



# Certificate of Analytical Results 660416

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-3**  
Lab Sample Id: 660416-003

Matrix: Soil  
Date Collected: 04.30.2020 10:40

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	320	50.1	mg/kg	05.01.2020 16:15		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 15:00

Basis: Wet Weight

Seq Number: 3124931

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	05.04.2020 13:10	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	05.04.2020 13:10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	05.04.2020 13:10	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	05.04.2020 13:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	05.04.2020 13:10	
o-Terphenyl	84-15-1	96	%	70-135	05.04.2020 13:10	



# Certificate of Analytical Results 660416

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-3**  
Lab Sample Id: 660416-003

Matrix: Soil  
Date Collected: 04.30.2020 10:40

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.02.2020 04:47	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.02.2020 04:47	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.02.2020 04:47	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.02.2020 04:47	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.02.2020 04:47	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.02.2020 04:47	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.02.2020 04:47	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	108	%	70-130	05.02.2020 04:47		
1,4-Difluorobenzene	540-36-3	114	%	70-130	05.02.2020 04:47		





## 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

Horned Owl Fed #3

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

MB Sample Id: 7702536-1-BLK

Matrix: Solid

LCS Sample Id: 7702536-1-BKS

Prep Method: E300P

Date Prep: 05.01.2020

LCSD Sample Id: 7702536-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	260	104	260	104	90-110	0	20	mg/kg	05.01.2020 14:51	

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

Parent Sample Id: 660414-001

Matrix: Soil

MS Sample Id: 660414-001 S

Prep Method: E300P

Date Prep: 05.01.2020

MSD Sample Id: 660414-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	75.9	199	256	91	263	94	90-110	3	20	mg/kg	05.01.2020 15:07	

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

Parent Sample Id: 660418-001

Matrix: Soil

MS Sample Id: 660418-001 S

Prep Method: E300P

Date Prep: 05.01.2020

MSD Sample Id: 660418-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	17.4	200	216	99	217	100	90-110	0	20	mg/kg	05.01.2020 16:27	

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

MB Sample Id: 7702620-1-BLK

Matrix: Solid

LCS Sample Id: 7702620-1-BKS

Prep Method: SW8015P

Date Prep: 05.01.2020

LCSD Sample Id: 7702620-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1070	107	846	85	70-135	23	35	mg/kg	05.01.2020 12:30	
Diesel Range Organics	<50.0	1000	1090	109	947	95	70-135	14	35	mg/kg	05.01.2020 12:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		134		110		70-135	%	05.01.2020 12:30
o-Terphenyl	99		126		106		70-135	%	05.01.2020 12:30

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

Matrix: Solid

MB Sample Id: 7702620-1-BLK

Prep Method: SW8015P

Date Prep: 05.01.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.01.2020 12:09	

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

Horned Owl Fed #3

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

Parent Sample Id: 660414-002

Matrix: Soil

MS Sample Id: 660414-002 S

Prep Method: SW8015P

Date Prep: 05.01.2020

MSD Sample Id: 660414-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.1	1000	900	90	855	86	70-135	5	35	mg/kg	05.01.2020 14:30	
Diesel Range Organics	<50.1	1000	1010	101	946	95	70-135	7	35	mg/kg	05.01.2020 14:30	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		124		70-135	%	05.01.2020 14:30
o-Terphenyl	128		110		70-135	%	05.01.2020 14:30

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3124854

MB Sample Id: 7702535-1-BLK

Matrix: Solid

LCS Sample Id: 7702535-1-BKS

Prep Method: SW5035A

Date Prep: 05.01.2020

LCSD Sample Id: 7702535-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.107	107	0.115	115	70-130	7	35	mg/kg	05.01.2020 23:05	
Toluene	<0.00200	0.100	0.101	101	0.105	105	70-130	4	35	mg/kg	05.01.2020 23:05	
Ethylbenzene	<0.00200	0.100	0.0936	94	0.0969	97	71-129	3	35	mg/kg	05.01.2020 23:05	
m,p-Xylenes	<0.00400	0.200	0.184	92	0.190	95	70-135	3	35	mg/kg	05.01.2020 23:05	
o-Xylene	<0.00200	0.100	0.0954	95	0.0992	99	71-133	4	35	mg/kg	05.01.2020 23:05	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		106		109		70-130	%	05.01.2020 23:05
4-Bromofluorobenzene	109		99		101		70-130	%	05.01.2020 23:05

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3124854

Parent Sample Id: 660345-018

Matrix: Soil

MS Sample Id: 660345-018 S

Prep Method: SW5035A

Date Prep: 05.01.2020

MSD Sample Id: 660345-018 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	0.0958	96	0.113	112	70-130	16	35	mg/kg	05.02.2020 08:21	
Toluene	<0.00199	0.0996	0.0864	87	0.103	102	70-130	18	35	mg/kg	05.02.2020 08:21	
Ethylbenzene	<0.00199	0.0996	0.0809	81	0.0958	95	71-129	17	35	mg/kg	05.02.2020 08:21	
m,p-Xylenes	<0.00398	0.199	0.157	79	0.186	92	70-135	17	35	mg/kg	05.02.2020 08:21	
o-Xylene	<0.00199	0.0996	0.0820	82	0.0967	96	71-133	16	35	mg/kg	05.02.2020 08:21	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		109		70-130	%	05.02.2020 08:21
4-Bromofluorobenzene	99		99		70-130	%	05.02.2020 08:21

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

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

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

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

### **Analysis Request of Chain of Custody Record**



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

Page 1 of 1

660410

[illegible]

**ANALYSIS REQUEST**  
(Circle or Specify Method No.)

[illegible]

ORIGINAL COPY

**XENCO Laboratories****Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 05.01.2020 12.15.00 PM**Work Order #:** 660416**Acceptable Temperature Range:** 0 - 6 degC**Air and Metal samples Acceptable Range:** Ambient**Temperature Measuring device used :** T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

**Checklist completed by:**

Elizabeth McClellan

Date: 05.01.2020

**Checklist reviewed by:**

Jessica Kramer

Date: 05.04.2020





# Certificate of Analysis Summary 660418

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Fri 05.01.2020 12:15

Report Date: 05.04.2020 17:47

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	660418-001	660418-002	660418-003	660418-004		
	<i>Field Id:</i>	SW-4	SW-5	SW-6	SW-7		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	04.30.2020 10:45	04.30.2020 10:50	04.30.2020 10:55	04.30.2020 11:00		
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	05.01.2020 16:33	05.01.2020 16:33	05.01.2020 16:33	05.01.2020 16:33		
	<i>Analyzed:</i>	05.02.2020 05:08	05.02.2020 05:30	05.02.2020 05:51	05.02.2020 06:13		
	<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	<0.00201 0.00201	<0.00201 0.00201		
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201		
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201		
m,p-Xylenes		<0.00398 0.00398	<0.00400 0.00400	<0.00402 0.00402	<0.00402 0.00402		
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201		
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201		
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201		
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	05.01.2020 14:30	05.01.2020 14:30	05.01.2020 14:30	05.01.2020 14:30		
	<i>Analyzed:</i>	05.01.2020 16:21	05.01.2020 16:38	05.01.2020 16:44	05.01.2020 17:01		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		17.4 9.96	929 50.5	856 50.5	420 10.0		
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	05.01.2020 16:00	05.01.2020 16:00	05.01.2020 17:00	05.01.2020 17:00		
	<i>Analyzed:</i>	05.04.2020 13:30	05.04.2020 13:51	05.01.2020 17:57	05.04.2020 14:12		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons		<50.0 50.0	<50.3 50.3	<50.2 50.2	<50.1 50.1		
Diesel Range Organics		<50.0 50.0	<50.3 50.3	<50.2 50.2	<50.1 50.1		
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.3 50.3	<50.2 50.2	<50.1 50.1		
Total TPH		<50.0 50.0	<50.3 50.3	<50.2 50.2	<50.1 50.1		

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

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

Jessica Kramer  
Project Manager



# Analytical Report 660418

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**05.04.2020**

Collected By: Client

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

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

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

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





05.04.2020

Project Manager: **Sheldon Hitchcock**  
**COG Operating LLC**  
2407 Pecos Avenue  
Artesia, NM 88210

Reference: XENCO Report No(s): **660418**  
**Horned Owl Fed #3**  
Project Address: Eddy, NM

**Sheldon Hitchcock:**

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) 660418. 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. 660418 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'. The signature is written in a cursive, flowing style.

---

**Jessica Kramer**  
Project Manager

*A Small Business and Minority Company*

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

**Sample Cross Reference 660418****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-4	S	04.30.2020 10:45		660418-001
SW-5	S	04.30.2020 10:50		660418-002
SW-6	S	04.30.2020 10:55		660418-003
SW-7	S	04.30.2020 11:00		660418-004



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Horned Owl Fed #3*

Project ID:

Work Order Number(s): 660418

Report Date: 05.04.2020

Date Received: 05.01.2020

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**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None



# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-4**  
Lab Sample Id: 660418-001

Matrix: Soil  
Date Collected: 04.30.2020 10:45

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3124858

Prep Method: E300P

% Moisture:

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.4	9.96	mg/kg	05.01.2020 16:21		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3124931

Prep Method: SW8015P

% Moisture:

Date Prep: 05.01.2020 16:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.04.2020 13:30	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.04.2020 13:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.04.2020 13:30	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.04.2020 13:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	05.04.2020 13:30	
o-Terphenyl	84-15-1	98	%	70-135	05.04.2020 13:30	



# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-4**  
Lab Sample Id: 660418-001

Matrix: Soil  
Date Collected: 04.30.2020 10:45

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.02.2020 05:08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.02.2020 05:08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.02.2020 05:08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.02.2020 05:08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.02.2020 05:08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.02.2020 05:08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.02.2020 05:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	114	%	70-130	05.02.2020 05:08	
4-Bromofluorobenzene	460-00-4	109	%	70-130	05.02.2020 05:08	



# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-5**  
Lab Sample Id: 660418-002

Matrix: Soil  
Date Collected: 04.30.2020 10:50

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	929	50.5	mg/kg	05.01.2020 16:38		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 16:00

Basis: Wet Weight

Seq Number: 3124931

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	05.04.2020 13:51	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	05.04.2020 13:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	05.04.2020 13:51	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	05.04.2020 13:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	05.04.2020 13:51	
o-Terphenyl	84-15-1	95	%	70-135	05.04.2020 13:51	



# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-5**  
Lab Sample Id: 660418-002

Matrix: Soil  
Date Collected: 04.30.2020 10:50

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.02.2020 05:30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.02.2020 05:30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.02.2020 05:30	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	05.02.2020 05:30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.02.2020 05:30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.02.2020 05:30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.02.2020 05:30	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	111	%	70-130	05.02.2020 05:30		
1,4-Difluorobenzene	540-36-3	115	%	70-130	05.02.2020 05:30		



# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-6**  
Lab Sample Id: 660418-003

Matrix: Soil  
Date Collected: 04.30.2020 10:55

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	856	50.5	mg/kg	05.01.2020 16:44		5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 17:00

Basis: Wet Weight

Seq Number: 3124868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	05.01.2020 17:57	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	05.01.2020 17:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	05.01.2020 17:57	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	05.01.2020 17:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	05.01.2020 17:57	
o-Terphenyl	84-15-1	109	%	70-135	05.01.2020 17:57	





# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-6**  
Lab Sample Id: 660418-003

Matrix: Soil  
Date Collected: 04.30.2020 10:55

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.02.2020 05:51	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.02.2020 05:51	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.02.2020 05:51	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.02.2020 05:51	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.02.2020 05:51	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.02.2020 05:51	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.02.2020 05:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	70-130	05.02.2020 05:51	
1,4-Difluorobenzene	540-36-3	116	%	70-130	05.02.2020 05:51	



# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-7**  
Lab Sample Id: 660418-004

Matrix: Soil  
Date Collected: 04.30.2020 11:00

Date Received: 05.01.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 14:30

Basis: Wet Weight

Seq Number: 3124858

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	420	10.0	mg/kg	05.01.2020 17:01		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.01.2020 17:00

Basis: Wet Weight

Seq Number: 3124931

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	05.04.2020 14:12	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	05.04.2020 14:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	05.04.2020 14:12	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	05.04.2020 14:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	05.04.2020 14:12	
o-Terphenyl	84-15-1	92	%	70-135	05.04.2020 14:12	



# Certificate of Analytical Results 660418

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-7**  
Lab Sample Id: 660418-004

Matrix: Soil  
Date Collected: 04.30.2020 11:00

Date Received: 05.01.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.01.2020 16:33

Basis: Wet Weight

Seq Number: 3124854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.02.2020 06:13	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.02.2020 06:13	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.02.2020 06:13	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.02.2020 06:13	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.02.2020 06:13	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.02.2020 06:13	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.02.2020 06:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.02.2020 06:13	
1,4-Difluorobenzene	540-36-3	115	%	70-130	05.02.2020 06:13	



## 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

Horned Owl Fed #3

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

MB Sample Id: 7702536-1-BLK

Matrix: Solid

LCS Sample Id: 7702536-1-BKS

Prep Method: E300P

Date Prep: 05.01.2020

LCSD Sample Id: 7702536-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	260	104	260	104	90-110	0	20	mg/kg	05.01.2020 14:51	

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

Parent Sample Id: 660414-001

Matrix: Soil

MS Sample Id: 660414-001 S

Prep Method: E300P

Date Prep: 05.01.2020

MSD Sample Id: 660414-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	75.9	199	256	91	263	94	90-110	3	20	mg/kg	05.01.2020 15:07	

## Analytical Method: Chloride by EPA 300

Seq Number: 3124858

Parent Sample Id: 660418-001

Matrix: Soil

MS Sample Id: 660418-001 S

Prep Method: E300P

Date Prep: 05.01.2020

MSD Sample Id: 660418-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	17.4	200	216	99	217	100	90-110	0	20	mg/kg	05.01.2020 16:27	

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3124868

MB Sample Id: 7702583-1-BLK

Matrix: Solid

LCS Sample Id: 7702583-1-BKS

Prep Method: SW8015P

Date Prep: 05.01.2020

LCSD Sample Id: 7702583-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1070	107	846	85	70-135	23	35	mg/kg	05.01.2020 12:30	
Diesel Range Organics	<50.0	1000	1090	109	947	95	70-135	14	35	mg/kg	05.01.2020 12:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		134		110		70-135	%	05.01.2020 12:30
o-Terphenyl	99		122		106		70-135	%	05.01.2020 12:30

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

MB Sample Id: 7702620-1-BLK

Matrix: Solid

LCS Sample Id: 7702620-1-BKS

Prep Method: SW8015P

Date Prep: 05.01.2020

LCSD Sample Id: 7702620-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1070	107	846	85	70-135	23	35	mg/kg	05.01.2020 12:30	
Diesel Range Organics	<50.0	1000	1090	109	947	95	70-135	14	35	mg/kg	05.01.2020 12:30	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		134		110		70-135	%	05.01.2020 12:30
o-Terphenyl	99		126		106		70-135	%	05.01.2020 12:30

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

Horned Owl Fed #3

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124868

Matrix: Solid

Prep Method: SW8015P

Date Prep: 05.01.2020

MB Sample Id: 7702583-1-BLK

## Parameter

Motor Oil Range Hydrocarbons (MRO)

MB  
Result

&lt;50.0

Units

mg/kg

Analysis  
Date

05.01.2020 12:09

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

Matrix: Solid

Prep Method: SW8015P

Date Prep: 05.01.2020

MB Sample Id: 7702620-1-BLK

## Parameter

Motor Oil Range Hydrocarbons (MRO)

MB  
Result

&lt;50.0

Units

mg/kg

Analysis  
Date

05.01.2020 12:09

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124868

Matrix: Soil

Prep Method: SW8015P

Date Prep: 05.01.2020

Parent Sample Id: 660414-001

MS Sample Id: 660414-001 S

MSD Sample Id: 660414-001 SD

## Parameter

Gasoline Range Hydrocarbons

Parent  
Result

&lt;49.9

Spike  
Amount

998

MS  
Result

918

MS  
%Rec

92

MSD  
Result

902

MSD  
%Rec

90

Limits

70-135

%RPD

2

RPD  
Limit

35

Units

mg/kg

Analysis  
Date

05.01.2020 14:30

Flag

Diesel Range Organics

&lt;49.9

998

1030

103

1000

100

70-135

3

35

mg/kg

05.01.2020 14:30

## Surrogate

1-Chlorooctane

MS  
%Rec

120

MS  
FlagMSD  
%Rec

116

MSD  
Flag

Limits

70-135

Units

%

Analysis  
Date

05.01.2020 14:30

o-Terphenyl

121

113

70-135

%

05.01.2020 14:30

Analytical Method: TPH By SW8015 Mod

Seq Number: 3124931

Matrix: Soil

Prep Method: SW8015P

Date Prep: 05.01.2020

Parent Sample Id: 660414-002

MS Sample Id: 660414-002 S

MSD Sample Id: 660414-002 SD

## Parameter

Gasoline Range Hydrocarbons

Parent  
Result

&lt;50.1

Spike  
Amount

1000

MS  
Result

900

MS  
%Rec

90

MSD  
Result

855

MSD  
%Rec

86

Limits

70-135

%RPD

5

RPD  
Limit

35

Units

mg/kg

Analysis  
Date

05.01.2020 14:30

Flag

Diesel Range Organics

&lt;50.1

1000

1010

101

946

95

70-135

7

35

mg/kg

05.01.2020 14:30

## Surrogate

1-Chlorooctane

MS  
%Rec

115

MS  
FlagMSD  
%Rec

124

MSD  
Flag

Limits

70-135

Units

%

Analysis  
Date

05.01.2020 14:30

o-Terphenyl

128

110

70-135

%

05.01.2020 14:30

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

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

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

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



## COG Operating LLC

Horned Owl Fed #3

Analytical Method: BTEX by EPA 8021B

Seq Number: 3124854

MB Sample Id: 7702535-1-BLK

Matrix: Solid

LCS Sample Id: 7702535-1-BKS

Prep Method: SW5035A

Date Prep: 05.01.2020

LCSD Sample Id: 7702535-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.107	107	0.115	115	70-130	7	35	mg/kg	05.01.2020 23:05	
Toluene	<0.00200	0.100	0.101	101	0.105	105	70-130	4	35	mg/kg	05.01.2020 23:05	
Ethylbenzene	<0.00200	0.100	0.0936	94	0.0969	97	71-129	3	35	mg/kg	05.01.2020 23:05	
m,p-Xylenes	<0.00400	0.200	0.184	92	0.190	95	70-135	3	35	mg/kg	05.01.2020 23:05	
o-Xylene	<0.00200	0.100	0.0954	95	0.0992	99	71-133	4	35	mg/kg	05.01.2020 23:05	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		106		109		70-130	%	05.01.2020 23:05
4-Bromofluorobenzene	109		99		101		70-130	%	05.01.2020 23:05

Analytical Method: BTEX by EPA 8021B

Seq Number: 3124854

Parent Sample Id: 660345-018

Matrix: Soil

MS Sample Id: 660345-018 S

Prep Method: SW5035A

Date Prep: 05.01.2020

MSD Sample Id: 660345-018 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	0.0958	96	0.113	112	70-130	16	35	mg/kg	05.02.2020 08:21	
Toluene	<0.00199	0.0996	0.0864	87	0.103	102	70-130	18	35	mg/kg	05.02.2020 08:21	
Ethylbenzene	<0.00199	0.0996	0.0809	81	0.0958	95	71-129	17	35	mg/kg	05.02.2020 08:21	
m,p-Xylenes	<0.00398	0.199	0.157	79	0.186	92	70-135	17	35	mg/kg	05.02.2020 08:21	
o-Xylene	<0.00199	0.0996	0.0820	82	0.0967	96	71-133	16	35	mg/kg	05.02.2020 08:21	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		109		70-130	%	05.02.2020 08:21
4-Bromofluorobenzene	99		99		70-130	%	05.02.2020 08:21

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

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

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

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



### Analysis Request of Chain of Custody Record



One Concho Center/600/111 Illinois  
Avenue/Midland, Texas  
Tel (432) 683-7443

Page 1 of 1

2020/4/18

[illegible]



## XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 05.01.2020 12.15.00 PM

Work Order #: 660418

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 05.01.2020

Checklist reviewed by:



Jessica Kramer

Date: 05.04.2020



# Certificate of Analysis Summary 660997

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Fri 05.08.2020 08:15

Report Date: 05.11.2020 12:37

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	660997-001	660997-002				
	<i>Field Id:</i>	SW-5	SW-6				
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL				
	<i>Sampled:</i>	05.07.2020 09:30	05.07.2020 09:40				
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	05.08.2020 14:27	05.08.2020 14:27				
	<i>Analyzed:</i>	05.08.2020 16:45	05.08.2020 17:02				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Chloride		482 49.8	413 50.1				

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

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

Jessica Kramer  
Project Manager



# Analytical Report 660997

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**05.11.2020**

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):  
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)  
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

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)



05.11.2020

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **660997**

**Horned Owl Fed #3**

Project Address: Eddy, NM

**Sheldon Hitchcock:**

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) 660997. 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. 660997 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'. The signature is written in a cursive, flowing style.

---

**Jessica Kramer**

Project Manager

*A Small Business and Minority Company*

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



## Sample Cross Reference 660997

COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-5	S	05.07.2020 09:30		660997-001
SW-6	S	05.07.2020 09:40		660997-002



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Horned Owl Fed #3*

Project ID:

Work Order Number(s): 660997

Report Date: 05.11.2020

Date Received: 05.08.2020

---

**Sample receipt non conformances and comments:**

---

**Sample receipt non conformances and comments per sample:**

None

**Certificate of Analytical Results 660997****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id: **SW-5**  
Lab Sample Id: 660997-001

Matrix: Soil  
Date Collected: 05.07.2020 09:30

Date Received: 05.08.2020 08:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.08.2020 14:27

Basis: Wet Weight

Seq Number: 3125531

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	482	49.8	mg/kg	05.08.2020 16:45		5

**Certificate of Analytical Results 660997****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id: **SW-6**  
Lab Sample Id: 660997-002

Matrix: Soil  
Date Collected: 05.07.2020 09:40

Date Received: 05.08.2020 08:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.08.2020 14:27

Basis: Wet Weight

Seq Number: 3125531

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	413	50.1	mg/kg	05.08.2020 17:02		5





## 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

Horned Owl Fed #3

**Analytical Method: Chloride by EPA 300**

Seq Number: 3125531

MB Sample Id: 7703035-1-BLK

Matrix: Solid

LCS Sample Id: 7703035-1-BKS

Prep Method: E300P

Date Prep: 05.08.2020

LCSD Sample Id: 7703035-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	252	101	251	100	90-110	0	20	mg/kg	05.08.2020 16:33	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3125531

Parent Sample Id: 660997-001

Matrix: Soil

MS Sample Id: 660997-001 S

Prep Method: E300P

Date Prep: 05.08.2020

MSD Sample Id: 660997-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	482	200	683	101	682	100	90-110	0	20	mg/kg	05.08.2020 16:51	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3125531

Parent Sample Id: 661041-007

Matrix: Soil

MS Sample Id: 661041-007 S

Prep Method: E300P

Date Prep: 05.08.2020

MSD Sample Id: 661041-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	196	98	196	98	90-110	0	20	mg/kg	05.08.2020 18:13	

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

$[D] = 100 * (C - A) / B$   
 $RPD = 200 * |(C - E) / (C + E)|$   
 $[D] = 100 * (C) / [B]$   
 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/Ilinois  
Avenue/Midland, Texas  
Tel (432) 683-7443

Page 1 of 1

660997

[illegible]

ORIGINAL COPY

**XENCO Laboratories****Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 05.08.2020 08.15.00 AM**Work Order #:** 660997**Acceptable Temperature Range:** 0 - 6 degC**Air and Metal samples Acceptable Range:** Ambient**Temperature Measuring device used :** T-NM-0007

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

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

**Checklist completed by:**

Elizabeth McClellan

Date: 05.08.2020

**Checklist reviewed by:**

Jessica Kramer

Date: 05.08.2020



# Certificate of Analysis Summary 661935

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Tue 05.19.2020 07:55

Report Date: 05.20.2020 13:30

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	661935-001	661935-002	661935-003	661935-004	661935-005	661935-006
	<i>Field Id:</i>	B-8	B-9	B-10	B-11	B-12	B-13
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.18.2020 09:30	05.18.2020 09:35	05.18.2020 09:40	05.18.2020 09:45	05.18.2020 09:50	05.18.2020 09:55
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	05.19.2020 10:49	05.19.2020 10:49	05.19.2020 10:49	05.19.2020 10:49	05.19.2020 10:49	05.19.2020 10:49
	<i>Analyzed:</i>	05.19.2020 13:48	05.19.2020 14:08	05.19.2020 14:29	05.19.2020 14:49	05.19.2020 15:10	05.19.2020 15:30
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
m,p-Xylenes		<0.00399 0.00399	<0.00401 0.00401	<0.00399 0.00399	<0.00398 0.00398	<0.00398 0.00398	<0.00398 0.00398
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	05.19.2020 11:53	05.19.2020 11:53	05.19.2020 11:53	05.19.2020 11:53	05.19.2020 11:53	05.19.2020 11:53
	<i>Analyzed:</i>	05.19.2020 12:42	05.19.2020 13:00	05.19.2020 13:06	05.19.2020 13:13	05.19.2020 13:19	05.19.2020 13:39
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		95.1 49.7	96.0 49.9	104 49.5	1810 49.7	1040 49.7	2890 49.8
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	05.19.2020 11:30	05.19.2020 11:30	05.19.2020 12:00	05.19.2020 12:00	05.19.2020 12:00	05.19.2020 12:00
	<i>Analyzed:</i>	05.19.2020 11:58	05.19.2020 11:58	05.19.2020 12:59	05.19.2020 13:20	05.19.2020 13:41	05.19.2020 14:01
	<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 (GRO)		<50.0 50.0	<50.3 50.3	<50.0 50.0	<50.0 50.0	<50.1 50.1	<50.0 50.0
Diesel Range Organics (DRO)		<50.0 50.0	<50.3 50.3	<50.0 50.0	<50.0 50.0	<50.1 50.1	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.3 50.3	<50.0 50.0	<50.0 50.0	<50.1 50.1	<50.0 50.0
Total TPH		<50.0 50.0	<50.3 50.3	<50.0 50.0	<50.0 50.0	<50.1 50.1	<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.

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Jessica Kramer  
Project Manager





# Certificate of Analysis Summary 661935

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Tue 05.19.2020 07:55

Report Date: 05.20.2020 13:30

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	661935-007	661935-008	661935-009	661935-010		
	<i>Field Id:</i>	B-14	B-15	B-16	B-17		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	05.18.2020 10:00	05.18.2020 10:05	05.18.2020 10:10	05.18.2020 10:15		
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	05.19.2020 10:49	05.19.2020 10:49	05.19.2020 10:49	05.19.2020 10:49		
	<i>Analyzed:</i>	05.19.2020 15:51	05.19.2020 16:11	05.19.2020 16:31	05.19.2020 16:52		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200		
Toluene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200		
Ethylbenzene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200		
m,p-Xylenes		<0.00396 0.00396	<0.00401 0.00401	<0.00399 0.00399	<0.00401 0.00401		
o-Xylene		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200		
Total Xylenes		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200		
Total BTEX		<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200		
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	05.19.2020 11:53	05.19.2020 11:53	05.19.2020 11:53	05.19.2020 11:53		
	<i>Analyzed:</i>	05.19.2020 13:45	05.19.2020 13:52	05.19.2020 13:58	05.19.2020 14:05		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		1220 49.9	889 49.8	757 49.7	557 49.9		
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	05.19.2020 12:00	05.19.2020 12:00	05.19.2020 12:00	05.19.2020 12:00		
	<i>Analyzed:</i>	05.19.2020 14:22	05.19.2020 14:43	05.19.2020 15:03	05.19.2020 15:24		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<49.8 49.8	<50.0 50.0	<50.3 50.3		
Diesel Range Organics (DRO)		<49.9 49.9	<49.8 49.8	<50.0 50.0	<50.3 50.3		
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<49.8 49.8	<50.0 50.0	<50.3 50.3		
Total TPH		<49.9 49.9	<49.8 49.8	<50.0 50.0	<50.3 50.3		

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



# Analytical Report 661935

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**05.20.2020**

Collected By: Client

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

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)



05.20.2020

Project Manager: **Sheldon Hitchcock**  
**COG Operating LLC**  
2407 Pecos Avenue  
Artesia, NM 88210

Reference: XENCO Report No(s): **661935**  
**Horned Owl Fed #3**  
Project Address: Eddy, NM

**Sheldon Hitchcock:**

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) 661935. 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. 661935 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

---

**Jessica Kramer**  
Project Manager

*A Small Business and Minority Company*

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



**Sample Cross Reference 661935****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
B-8	S	05.18.2020 09:30		661935-001
B-9	S	05.18.2020 09:35		661935-002
B-10	S	05.18.2020 09:40		661935-003
B-11	S	05.18.2020 09:45		661935-004
B-12	S	05.18.2020 09:50		661935-005
B-13	S	05.18.2020 09:55		661935-006
B-14	S	05.18.2020 10:00		661935-007
B-15	S	05.18.2020 10:05		661935-008
B-16	S	05.18.2020 10:10		661935-009
B-17	S	05.18.2020 10:15		661935-010



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Horned Owl Fed #3*

Project ID:

Work Order Number(s): 661935

Report Date: 05.20.2020

Date Received: 05.19.2020

---

**Sample receipt non conformances and comments:**

---

**Sample receipt non conformances and comments per sample:**

None



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-8**  
Lab Sample Id: 661935-001

Matrix: Soil  
Date Collected: 05.18.2020 09:30

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	95.1	49.7	mg/kg	05.19.2020 12:42		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126402

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 11:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.19.2020 11:58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.19.2020 11:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.19.2020 11:58	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.19.2020 11:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	05.19.2020 11:58	
o-Terphenyl	84-15-1	109	%	70-135	05.19.2020 11:58	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-8**  
Lab Sample Id: 661935-001

Matrix: Soil  
Date Collected: 05.18.2020 09:30

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 13:48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 13:48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 13:48	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.19.2020 13:48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 13:48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 13:48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 13:48	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	101	%	70-130	05.19.2020 13:48		
1,4-Difluorobenzene	540-36-3	106	%	70-130	05.19.2020 13:48		



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-9**  
Lab Sample Id: 661935-002

Matrix: Soil  
Date Collected: 05.18.2020 09:35

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	96.0	49.9	mg/kg	05.19.2020 13:00		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126381

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 11:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	05.19.2020 11:58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	05.19.2020 11:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	05.19.2020 11:58	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	05.19.2020 11:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	05.19.2020 11:58	
o-Terphenyl	84-15-1	102	%	70-135	05.19.2020 11:58	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-9**  
Lab Sample Id: 661935-002

Matrix: Soil  
Date Collected: 05.18.2020 09:35

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 14:08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 14:08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 14:08	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.19.2020 14:08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 14:08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 14:08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 14:08	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	106	%	70-130	05.19.2020 14:08		
4-Bromofluorobenzene	460-00-4	96	%	70-130	05.19.2020 14:08		



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-10**  
Lab Sample Id: 661935-003

Matrix: Soil  
Date Collected: 05.18.2020 09:40

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	104	49.5	mg/kg	05.19.2020 13:06		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126402

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.19.2020 12:59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.19.2020 12:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.19.2020 12:59	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.19.2020 12:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	05.19.2020 12:59	
o-Terphenyl	84-15-1	99	%	70-135	05.19.2020 12:59	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-10**  
Lab Sample Id: 661935-003

Matrix: Soil  
Date Collected: 05.18.2020 09:40

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 14:29	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 14:29	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 14:29	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.19.2020 14:29	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 14:29	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 14:29	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 14:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	05.19.2020 14:29	
1,4-Difluorobenzene	540-36-3	108	%	70-130	05.19.2020 14:29	





# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-11**  
Lab Sample Id: 661935-004

Matrix: Soil  
Date Collected: 05.18.2020 09:45

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1810	49.7	mg/kg	05.19.2020 13:13		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126402

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.19.2020 13:20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.19.2020 13:20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.19.2020 13:20	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.19.2020 13:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	05.19.2020 13:20	
o-Terphenyl	84-15-1	112	%	70-135	05.19.2020 13:20	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-11**  
Lab Sample Id: 661935-004

Matrix: Soil  
Date Collected: 05.18.2020 09:45

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.2020 14:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.2020 14:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.2020 14:49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.2020 14:49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.2020 14:49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.2020 14:49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.2020 14:49	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	108	%	70-130	05.19.2020 14:49		
4-Bromofluorobenzene	460-00-4	99	%	70-130	05.19.2020 14:49		



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-12**  
Lab Sample Id: 661935-005

Matrix: Soil  
Date Collected: 05.18.2020 09:50

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Seq Number: 3126463

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>1040</b>	49.7	mg/kg	05.19.2020 13:19		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Seq Number: 3126402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	05.19.2020 13:41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	05.19.2020 13:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	05.19.2020 13:41	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	05.19.2020 13:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	05.19.2020 13:41	
o-Terphenyl	84-15-1	112	%	70-135	05.19.2020 13:41	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-12**  
Lab Sample Id: 661935-005

Matrix: Soil  
Date Collected: 05.18.2020 09:50

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.2020 15:10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.2020 15:10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.2020 15:10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.2020 15:10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.2020 15:10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.2020 15:10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.2020 15:10	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	100	%	70-130	05.19.2020 15:10		
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.19.2020 15:10		



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-13**  
Lab Sample Id: 661935-006

Matrix: Soil  
Date Collected: 05.18.2020 09:55

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>2890</b>	49.8	mg/kg	05.19.2020 13:39		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126402

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.19.2020 14:01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.19.2020 14:01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.19.2020 14:01	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.19.2020 14:01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	05.19.2020 14:01	
o-Terphenyl	84-15-1	110	%	70-135	05.19.2020 14:01	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-13**  
Lab Sample Id: 661935-006

Matrix: Soil  
Date Collected: 05.18.2020 09:55

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.2020 15:30	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.2020 15:30	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.2020 15:30	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.2020 15:30	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.2020 15:30	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.2020 15:30	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.2020 15:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.19.2020 15:30	
4-Bromofluorobenzene	460-00-4	104	%	70-130	05.19.2020 15:30	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-14**  
Lab Sample Id: 661935-007

Matrix: Soil  
Date Collected: 05.18.2020 10:00

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1220	49.9	mg/kg	05.19.2020 13:45		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126402

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	05.19.2020 14:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	05.19.2020 14:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.19.2020 14:22	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.19.2020 14:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	05.19.2020 14:22	
o-Terphenyl	84-15-1	78	%	70-135	05.19.2020 14:22	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-14**  
Lab Sample Id: 661935-007

Matrix: Soil  
Date Collected: 05.18.2020 10:00

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.19.2020 15:51	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.19.2020 15:51	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.19.2020 15:51	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	05.19.2020 15:51	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.19.2020 15:51	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.19.2020 15:51	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.19.2020 15:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	05.19.2020 15:51	
4-Bromofluorobenzene	460-00-4	101	%	70-130	05.19.2020 15:51	





# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-15**  
Lab Sample Id: 661935-008

Matrix: Soil  
Date Collected: 05.18.2020 10:05

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	889	49.8	mg/kg	05.19.2020 13:52		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126402

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	05.19.2020 14:43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	05.19.2020 14:43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.19.2020 14:43	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.19.2020 14:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	05.19.2020 14:43	
o-Terphenyl	84-15-1	76	%	70-135	05.19.2020 14:43	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-15**  
Lab Sample Id: 661935-008

Matrix: Soil  
Date Collected: 05.18.2020 10:05

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 16:11	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 16:11	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 16:11	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.19.2020 16:11	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 16:11	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 16:11	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 16:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	05.19.2020 16:11	
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.19.2020 16:11	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-16**  
Lab Sample Id: 661935-009

Matrix: Soil  
Date Collected: 05.18.2020 10:10

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Seq Number: 3126463

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	757	49.7	mg/kg	05.19.2020 13:58		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Seq Number: 3126402

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.19.2020 15:03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.19.2020 15:03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.19.2020 15:03	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.19.2020 15:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	05.19.2020 15:03	
o-Terphenyl	84-15-1	96	%	70-135	05.19.2020 15:03	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-16**  
Lab Sample Id: 661935-009

Matrix: Soil  
Date Collected: 05.18.2020 10:10

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 16:31	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 16:31	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 16:31	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.19.2020 16:31	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 16:31	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 16:31	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 16:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	101	%	70-130	05.19.2020 16:31	
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.19.2020 16:31	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-17**  
Lab Sample Id: 661935-010

Matrix: Soil  
Date Collected: 05.18.2020 10:15

Date Received: 05.19.2020 07:55

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3126463

Prep Method: E300P

% Moisture:

Date Prep: 05.19.2020 11:53

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	557	49.9	mg/kg	05.19.2020 14:05		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3126402

Prep Method: SW8015P

% Moisture:

Date Prep: 05.19.2020 12:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	05.19.2020 15:24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	05.19.2020 15:24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	05.19.2020 15:24	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	05.19.2020 15:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	05.19.2020 15:24	
o-Terphenyl	84-15-1	76	%	70-135	05.19.2020 15:24	



# Certificate of Analytical Results 661935

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-17**  
Lab Sample Id: 661935-010

Matrix: Soil  
Date Collected: 05.18.2020 10:15

Date Received: 05.19.2020 07:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 05.19.2020 10:49

Basis: Wet Weight

Seq Number: 3126452

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.2020 16:52	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.2020 16:52	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.2020 16:52	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.19.2020 16:52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.2020 16:52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.2020 16:52	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.2020 16:52	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	106	%	70-130	05.19.2020 16:52		
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.19.2020 16:52		



## 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

Horned Owl Fed #3

## Analytical Method: Chloride by EPA 300

Seq Number: 3126463

MB Sample Id: 7703647-1-BLK

Matrix: Solid

LCS Sample Id: 7703647-1-BKS

Prep Method: E300P

Date Prep: 05.19.2020

LCSD Sample Id: 7703647-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	251	100	249	100	90-110	1	20	mg/kg	05.19.2020 12:31	

## Analytical Method: Chloride by EPA 300

Seq Number: 3126463

Parent Sample Id: 661935-001

Matrix: Soil

MS Sample Id: 661935-001 S

Prep Method: E300P

Date Prep: 05.19.2020

MSD Sample Id: 661935-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	95.1	199	279	92	281	93	90-110	1	20	mg/kg	05.19.2020 12:48	

## Analytical Method: Chloride by EPA 300

Seq Number: 3126463

Parent Sample Id: 661936-001

Matrix: Soil

MS Sample Id: 661936-001 S

Prep Method: E300P

Date Prep: 05.19.2020

MSD Sample Id: 661936-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	80.8	202	255	86	256	87	90-110	0	20	mg/kg	05.19.2020 14:18	X

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3126381

MB Sample Id: 7703639-1-BLK

Matrix: Solid

LCS Sample Id: 7703639-1-BKS

Prep Method: SW8015P

Date Prep: 05.19.2020

LCSD Sample Id: 7703639-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1030	103	907	91	70-135	13	35	mg/kg	05.19.2020 11:17	
Diesel Range Organics (DRO)	<50.0	1000	913	91	805	81	70-135	13	35	mg/kg	05.19.2020 11:17	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	130		116		117		70-135	%	05.19.2020 11:17
o-Terphenyl	130		112		97		70-135	%	05.19.2020 11:17

## Analytical Method: TPH by SW8015 Mod

Seq Number: 3126402

MB Sample Id: 7703654-1-BLK

Matrix: Solid

LCS Sample Id: 7703654-1-BKS

Prep Method: SW8015P

Date Prep: 05.19.2020

LCSD Sample Id: 7703654-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	957	96	962	96	70-135	1	35	mg/kg	05.19.2020 11:17	
Diesel Range Organics (DRO)	<50.0	1000	1090	109	1020	102	70-135	7	35	mg/kg	05.19.2020 11:17	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		133		113		70-135	%	05.19.2020 11:17
o-Terphenyl	124		133		101		70-135	%	05.19.2020 11:17

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

Horned Owl Fed #3

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126381

Matrix: Solid

Prep Method: SW8015P

Date Prep: 05.19.2020

MB Sample Id: 7703639-1-BLK

## Parameter

Motor Oil Range Hydrocarbons (MRO)

MB  
Result

&lt;50.0

Units

mg/kg

Analysis  
Date

05.19.2020 10:56

Flag

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126402

Matrix: Solid

Prep Method: SW8015P

Date Prep: 05.19.2020

MB Sample Id: 7703654-1-BLK

## Parameter

Motor Oil Range Hydrocarbons (MRO)

MB  
Result

&lt;50.0

Units

mg/kg

Analysis  
Date

05.19.2020 10:56

Flag

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126381

Matrix: Soil

Prep Method: SW8015P

Date Prep: 05.19.2020

Parent Sample Id: 661935-002

MS Sample Id: 661935-002 S

MSD Sample Id: 661935-002 SD

## Parameter

Gasoline Range Hydrocarbons (GRO)

Parent  
Result

&lt;49.9

Spike  
Amount

997

MS  
Result

970

MS  
%Rec

97

MSD  
Result

994

MSD  
%Rec

99

Limits

70-135

%RPD

2

RPD  
Limit

35

Units

mg/kg

Analysis  
Date

05.19.2020 12:18

Flag

Diesel Range Organics (DRO)

&lt;49.9

997

826

83

1030

103

70-135

22

35

mg/kg

05.19.2020 12:18

## Surrogate

1-Chlorooctane

MS  
%Rec

111

MS  
FlagMSD  
%Rec

130

MSD  
Flag

Limits

70-135

Units

%

Analysis  
Date

05.19.2020 12:18

o-Terphenyl

88

103

70-135

%

05.19.2020 12:18

Analytical Method: TPH by SW8015 Mod

Seq Number: 3126402

Matrix: Soil

Prep Method: SW8015P

Date Prep: 05.19.2020

Parent Sample Id: 661935-001

MS Sample Id: 661935-001 S

MSD Sample Id: 661935-001 SD

## Parameter

Gasoline Range Hydrocarbons (GRO)

Parent  
Result

&lt;50.3

Spike  
Amount

1010

MS  
Result

890

MS  
%Rec

88

MSD  
Result

890

MSD  
%Rec

89

Limits

70-135

%RPD

0

RPD  
Limit

35

Units

mg/kg

Analysis  
Date

05.19.2020 12:18

Flag

Diesel Range Organics (DRO)

&lt;50.3

1010

980

97

979

98

70-135

0

35

mg/kg

05.19.2020 12:18

## Surrogate

1-Chlorooctane

MS  
%Rec

124

MS  
FlagMSD  
%Rec

125

MSD  
Flag

Limits

70-135

Units

%

Analysis  
Date

05.19.2020 12:18

o-Terphenyl

101

101

70-135

%

05.19.2020 12:18

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

Horned Owl Fed #3

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3126452

MB Sample Id: 7703646-1-BLK

Matrix: Solid

LCS Sample Id: 7703646-1-BKS

Prep Method: SW5035A

Date Prep: 05.19.2020

LCSD Sample Id: 7703646-1-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	0.106	106	0.108	108	70-130	2	35	mg/kg	05.19.2020 12:06	
Toluene	<0.00200	0.100	0.102	102	0.101	101	70-130	1	35	mg/kg	05.19.2020 12:06	
Ethylbenzene	<0.00200	0.100	0.0942	94	0.0939	94	71-129	0	35	mg/kg	05.19.2020 12:06	
m,p-Xylenes	<0.00400	0.200	0.194	97	0.193	97	70-135	1	35	mg/kg	05.19.2020 12:06	
o-Xylene	<0.00200	0.100	0.0992	99	0.0998	100	71-133	1	35	mg/kg	05.19.2020 12:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		104		105		70-130	%	05.19.2020 12:06
4-Bromofluorobenzene	99		94		93		70-130	%	05.19.2020 12:06

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3126452

Parent Sample Id: 661935-001

Matrix: Soil

MS Sample Id: 661935-001 S

Prep Method: SW5035A

Date Prep: 05.19.2020

MSD Sample Id: 661935-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.110	110	0.117	117	70-130	6	35	mg/kg	05.19.2020 12:47	
Toluene	<0.00200	0.100	0.105	105	0.111	111	70-130	6	35	mg/kg	05.19.2020 12:47	
Ethylbenzene	<0.00200	0.100	0.0968	97	0.103	103	71-129	6	35	mg/kg	05.19.2020 12:47	
m,p-Xylenes	<0.00401	0.200	0.198	99	0.210	105	70-135	6	35	mg/kg	05.19.2020 12:47	
o-Xylene	<0.00200	0.100	0.0993	99	0.105	105	71-133	6	35	mg/kg	05.19.2020 12:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		102		70-130	%	05.19.2020 12:47
4-Bromofluorobenzene	95		94		70-130	%	05.19.2020 12:47

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 1

6661935

Client Name:		COG-Artesia		Site Manager:		Sheldon Hitchcock	
Project Name:		Horned Owl Feed #3					
Project Location: (county, state)		Edy, NM					
Invoice to:		Project #:					
Receiving Laboratory:		Sheldon Hitchcock					
Comments:		Xarce		Sampler Name:		Sheldon Hitchcock	

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	(C)omposite/(G)rab		
		YEAR:	2020	DATE	TIME	WATER	SOIL	HCL	HNO <sub>3</sub>			ICE	
B-8			5/18	9:30		X						1	C
B-9				9:35								1	
B-10				9:40								1	
B-11				9:45								1	
B-12				9:50								1	
B-13				9:55								1	
B-14				10:00								1	
B-15				10:05								1	
B-16				10:10								1	
B-17				10:15								1	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Sheldon Hitchcock	5/19/20	07:55	[Signature]	5/19/20	07:55
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

[illegible]

ORIGINAL COPY

# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 05.19.2020 07.55.00 AM

Work Order #: 661935

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

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

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 05.19.2020

Checklist reviewed by:



Jessica Kramer

Date: 05.19.2020

## Certificate of Analysis Summary 666129



Xenco

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Date Received in Lab: Wed 07.01.2020 13:38

Contact: Sheldon Hitchcock

Report Date: 07.02.2020 17:40

Project Location: Eddy, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	666129-001	666129-002	666129-003	666129-004	666129-005	
	<i>Field Id:</i>	SW-8	SW-9	SW-10	SW-11	SW-12	
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	07.01.2020 11:30	07.01.2020 11:32	07.01.2020 11:34	07.01.2020 11:36	07.01.2020 11:38	
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	07.01.2020 15:02	07.01.2020 15:02	07.01.2020 15:02	07.01.2020 15:02	07.01.2020 15:02	
	<i>Analyzed:</i>	07.01.2020 18:17	07.01.2020 18:38	07.01.2020 18:58	07.01.2020 19:19	07.01.2020 19:39	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	
m,p-Xylenes		<0.00401 0.00401	<0.00402 0.00402	<0.00397 0.00397	<0.00398 0.00398	<0.00400 0.00400	
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	07.01.2020 14:59	07.01.2020 14:59	07.01.2020 14:59	07.01.2020 14:59	07.01.2020 14:59	
	<i>Analyzed:</i>	07.01.2020 19:06	07.01.2020 19:12	07.01.2020 19:18	07.01.2020 19:24	07.01.2020 19:30	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		157 50.2	61.7 10.0	208 50.4	30.9 10.0	<49.7 49.7	
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	07.01.2020 15:00	07.01.2020 15:00	07.01.2020 15:00	07.01.2020 15:00	07.01.2020 15:00	
	<i>Analyzed:</i>	07.01.2020 16:58	07.01.2020 17:40	07.01.2020 18:00	07.01.2020 18:21	07.01.2020 18:41	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.2 50.2	<50.1 50.1	
Diesel Range Organics		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.2 50.2	<50.1 50.1	
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.2 50.2	<50.1 50.1	
Total TPH		<50.2 50.2	<50.0 50.0	<50.1 50.1	<50.2 50.2	<50.1 50.1	

BRL - Below Reporting Limit

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





Xenco

# Analytical Report 666129

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**07.02.2020**

Collected By: Client

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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)  
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)  
Xenco-Carlsbad (LELAP): Louisiana (05092)  
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)  
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)  
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.02.2020

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **666129**

**Horned Owl Fed #3**

Project Address: Eddy, NM

**Sheldon Hitchcock:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 666129. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 666129 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

---

**Jessica Kramer**

Project Manager

*A Small Business and Minority Company*

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

**Sample Cross Reference 666129****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-8	S	07.01.2020 11:30		666129-001
SW-9	S	07.01.2020 11:32		666129-002
SW-10	S	07.01.2020 11:34		666129-003
SW-11	S	07.01.2020 11:36		666129-004
SW-12	S	07.01.2020 11:38		666129-005





Xenco

## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Horned Owl Fed #3*

Project ID:

Work Order Number(s): 666129

Report Date: 07.02.2020

Date Received: 07.01.2020

---

**Sample receipt non conformances and comments:**

None

---

**Sample receipt non conformances and comments per sample:**

None



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-8**  
Lab Sample Id: 666129-001

Matrix: Soil  
Date Collected: 07.01.2020 11:30

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3130578

Prep Method: E300P

% Moisture:

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	157	50.2	mg/kg	07.01.2020 19:06		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3130574

Prep Method: SW8015P

% Moisture:

Date Prep: 07.01.2020 15:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	07.01.2020 16:58	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	07.01.2020 16:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	07.01.2020 16:58	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	07.01.2020 16:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	07.01.2020 16:58	
o-Terphenyl	84-15-1	101	%	70-135	07.01.2020 16:58	



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-8**  
Lab Sample Id: 666129-001

Matrix: Soil  
Date Collected: 07.01.2020 11:30

Date Received: 07.01.2020 13:38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 15:02

Basis: Wet Weight

Seq Number: 3130571

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.01.2020 18:17	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.01.2020 18:17	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.01.2020 18:17	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.01.2020 18:17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.01.2020 18:17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.01.2020 18:17	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.01.2020 18:17	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	101	%	70-130	07.01.2020 18:17		
1,4-Difluorobenzene	540-36-3	101	%	70-130	07.01.2020 18:17		



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-9**  
Lab Sample Id: 666129-002

Matrix: Soil  
Date Collected: 07.01.2020 11:32

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.7	10.0	mg/kg	07.01.2020 19:12		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 07.01.2020 15:00

Basis: Wet Weight

Seq Number: 3130574

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	07.01.2020 17:40	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	07.01.2020 17:40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.01.2020 17:40	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.01.2020 17:40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	07.01.2020 17:40	
o-Terphenyl	84-15-1	94	%	70-135	07.01.2020 17:40	



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-9**  
Lab Sample Id: 666129-002

Matrix: Soil  
Date Collected: 07.01.2020 11:32

Date Received: 07.01.2020 13:38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 15:02

Basis: Wet Weight

Seq Number: 3130571

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.01.2020 18:38	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.01.2020 18:38	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.01.2020 18:38	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.01.2020 18:38	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.01.2020 18:38	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.01.2020 18:38	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.01.2020 18:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	70-130	07.01.2020 18:38	
4-Bromofluorobenzene	460-00-4	108	%	70-130	07.01.2020 18:38	



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-10**  
Lab Sample Id: 666129-003

Matrix: Soil  
Date Collected: 07.01.2020 11:34

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3130578

Prep Method: E300P

% Moisture:

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	208	50.4	mg/kg	07.01.2020 19:18		5

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3130574

Prep Method: SW8015P

% Moisture:

Date Prep: 07.01.2020 15:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	07.01.2020 18:00	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	07.01.2020 18:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	07.01.2020 18:00	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	07.01.2020 18:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	07.01.2020 18:00	
o-Terphenyl	84-15-1	100	%	70-135	07.01.2020 18:00	



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-10**  
Lab Sample Id: 666129-003

Matrix: Soil  
Date Collected: 07.01.2020 11:34

Date Received: 07.01.2020 13:38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 15:02

Basis: Wet Weight

Seq Number: 3130571

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.01.2020 18:58	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.01.2020 18:58	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.01.2020 18:58	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.01.2020 18:58	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.01.2020 18:58	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.01.2020 18:58	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.01.2020 18:58	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.01.2020 18:58		
4-Bromofluorobenzene	460-00-4	105	%	70-130	07.01.2020 18:58		



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-11**  
Lab Sample Id: 666129-004

Matrix: Soil  
Date Collected: 07.01.2020 11:36

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>30.9</b>	10.0	mg/kg	07.01.2020 19:24		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 07.01.2020 15:00

Basis: Wet Weight

Seq Number: 3130574

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	07.01.2020 18:21	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	07.01.2020 18:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	07.01.2020 18:21	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	07.01.2020 18:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	07.01.2020 18:21	
o-Terphenyl	84-15-1	99	%	70-135	07.01.2020 18:21	





# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-11**  
Lab Sample Id: 666129-004

Matrix: Soil  
Date Collected: 07.01.2020 11:36

Date Received: 07.01.2020 13:38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 15:02

Basis: Wet Weight

Seq Number: 3130571

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.01.2020 19:19	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.01.2020 19:19	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.01.2020 19:19	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.01.2020 19:19	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.01.2020 19:19	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.01.2020 19:19	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.01.2020 19:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	70-130	07.01.2020 19:19	
1,4-Difluorobenzene	540-36-3	102	%	70-130	07.01.2020 19:19	



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-12**  
Lab Sample Id: 666129-005

Matrix: Soil  
Date Collected: 07.01.2020 11:38

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<49.7	49.7	mg/kg	07.01.2020 19:30	U	5

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 07.01.2020 15:00

Basis: Wet Weight

Seq Number: 3130574

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	07.01.2020 18:41	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	07.01.2020 18:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	07.01.2020 18:41	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	07.01.2020 18:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	07.01.2020 18:41	
o-Terphenyl	84-15-1	102	%	70-135	07.01.2020 18:41	



# Certificate of Analytical Results 666129

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-12**  
Lab Sample Id: 666129-005

Matrix: Soil  
Date Collected: 07.01.2020 11:38

Date Received: 07.01.2020 13:38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 15:02

Basis: Wet Weight

Seq Number: 3130571

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.01.2020 19:39	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.01.2020 19:39	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.01.2020 19:39	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.01.2020 19:39	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.01.2020 19:39	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.01.2020 19:39	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.01.2020 19:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.01.2020 19:39	
4-Bromofluorobenzene	460-00-4	98	%	70-130	07.01.2020 19:39	

## 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

Horned Owl Fed #3

## Analytical Method: Chloride by EPA 300

Seq Number: 3130578

MB Sample Id: 7706575-1-BLK

Matrix: Solid

LCS Sample Id: 7706575-1-BKS

Prep Method: E300P

Date Prep: 07.01.2020

LCSD Sample Id: 7706575-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	256	102	264	106	90-110	3	20	mg/kg	07.01.2020 18:00	

## Analytical Method: Chloride by EPA 300

Seq Number: 3130578

Parent Sample Id: 666068-002

Matrix: Soil

MS Sample Id: 666068-002 S

Prep Method: E300P

Date Prep: 07.01.2020

MSD Sample Id: 666068-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5010	203	5210	99	5210	100	90-110	0	20	mg/kg	07.01.2020 18:18	

## Analytical Method: Chloride by EPA 300

Seq Number: 3130578

Parent Sample Id: 666135-001

Matrix: Soil

MS Sample Id: 666135-001 S

Prep Method: E300P

Date Prep: 07.01.2020

MSD Sample Id: 666135-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	275	199	418	72	419	72	90-110	0	20	mg/kg	07.01.2020 19:42	X

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3130574

MB Sample Id: 7706586-1-BLK

Matrix: Solid

LCS Sample Id: 7706586-1-BKS

Prep Method: SW8015P

Date Prep: 07.01.2020

LCSD Sample Id: 7706586-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1070	107	1090	109	70-135	2	35	mg/kg	07.01.2020 10:45	
Diesel Range Organics	<50.0	1000	1120	112	1130	113	70-135	1	35	mg/kg	07.01.2020 10:45	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	122		118		120		70-135	%	07.01.2020 10:45
o-Terphenyl	110		109		109		70-135	%	07.01.2020 10:45

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3130574

Matrix: Solid

MB Sample Id: 7706586-1-BLK

Prep Method: SW8015P

Date Prep: 07.01.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.01.2020 10:25	

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

Horned Owl Fed #3

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3130574

Parent Sample Id: 666055-001

Matrix: Soil

MS Sample Id: 666055-001 S

Prep Method: SW8015P

Date Prep: 07.01.2020

MSD Sample Id: 666055-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.3	1010	1200	119	1180	118	70-135	2	35	mg/kg	07.01.2020 13:33	
Diesel Range Organics	<50.3	1010	1160	115	1120	112	70-135	4	35	mg/kg	07.01.2020 13:33	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	127		125		70-135	%	07.01.2020 13:33
o-Terphenyl	113		110		70-135	%	07.01.2020 13:33

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3130571

MB Sample Id: 7706591-1-BLK

Matrix: Solid

LCS Sample Id: 7706591-1-BKS

Prep Method: SW5035A

Date Prep: 07.01.2020

LCSD Sample Id: 7706591-1-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	0.0921	92	0.0950	95	70-130	3	35	mg/kg	07.01.2020 16:21	
Toluene	<0.00200	0.100	0.0924	92	0.0937	94	70-130	1	35	mg/kg	07.01.2020 16:21	
Ethylbenzene	<0.00200	0.100	0.0963	96	0.0995	100	71-129	3	35	mg/kg	07.01.2020 16:21	
m,p-Xylenes	<0.00400	0.200	0.197	99	0.203	102	70-135	3	35	mg/kg	07.01.2020 16:21	
o-Xylene	<0.00200	0.100	0.0974	97	0.100	100	71-133	3	35	mg/kg	07.01.2020 16:21	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		99		98		70-130	%	07.01.2020 16:21
4-Bromofluorobenzene	102		97		100		70-130	%	07.01.2020 16:21

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3130571

Parent Sample Id: 666129-001

Matrix: Soil

MS Sample Id: 666129-001 S

Prep Method: SW5035A

Date Prep: 07.01.2020

MSD Sample Id: 666129-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.110	110	0.109	108	70-130	1	35	mg/kg	07.01.2020 17:01	
Toluene	<0.00200	0.0998	0.106	106	0.105	104	70-130	1	35	mg/kg	07.01.2020 17:01	
Ethylbenzene	<0.00200	0.0998	0.111	111	0.108	107	71-129	3	35	mg/kg	07.01.2020 17:01	
m,p-Xylenes	<0.00399	0.200	0.227	114	0.222	110	70-135	2	35	mg/kg	07.01.2020 17:01	
o-Xylene	<0.00200	0.0998	0.111	111	0.110	109	71-133	1	35	mg/kg	07.01.2020 17:01	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		70-130	%	07.01.2020 17:01
4-Bromofluorobenzene	96		101		70-130	%	07.01.2020 17:01

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 7

label 29

Client Name:

COG-Artesia

Site Manager:

Sheldon Hitchcock

Project Name:

Horned Owl Fed #3

Project Location:

(county, state)  
Edley, NM

Project #:

Invoice to:

Sheldon Hitchcock

Receiving Laboratory:

Sheldon Hitchcock

Comments:

Xenoco

Sampler Name:

Sheldon Hitchcock

LAB #

LAB USE ONLY

SAMPLE IDENTIFICATION

YEAR: 2020

DATE

TIME

MATRIX

PRESERVATIVE METHOD

# CONTAINERS

(C)omposite/(G)rab

5V-8

7/1

11:30

X

X

TPH 8015M ( GRO - DRO - MRO)

X

5V-9

11:32

X

X

BTEX 8021B

X

5V-10

11:34

X

X

Chloride

X

5V-11

11:36

X

X

5V-12

11:38

X

X

LAB USE ONLY

Sample Temperature

1.0/0.2

REMARKS:

☒ RUSH: Same Day 24 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

48 hr

72 hr

0CD: 8/2/2020 8:35:49 AM

ANALYSIS REQUEST

(Circle or Specify Method No.)

Hold

ORIGINAL COPY



Xenco

# Certificate of Analysis Summary 666135

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Date Received in Lab: Wed 07.01.2020 13:38

Contact: Sheldon Hitchcock

Report Date: 07.02.2020 17:39

Project Location: Eddy, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	666135-001	666135-002	666135-003	666135-004	666135-005	666135-006
	<i>Field Id:</i>	Bttm- 11	Bttm- 12	Bttm- 13	Bttm- 14	Bttm- 15	Bttm- 16
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	07.01.2020 11:00	07.01.2020 11:02	07.01.2020 11:04	07.01.2020 11:06	07.01.2020 11:08	07.01.2020 11:10
Chloride by EPA 300	<i>Extracted:</i>	07.01.2020 14:59	07.01.2020 14:59	07.01.2020 14:59	07.01.2020 14:59	07.01.2020 14:59	07.01.2020 14:59
	<i>Analyzed:</i>	07.01.2020 19:36	07.01.2020 19:54	07.01.2020 20:00	07.01.2020 20:18	07.01.2020 20:24	07.01.2020 20:30
	<i>Units/RL:</i>	mg/kg      RL	mg/kg      RL	mg/kg      RL	mg/kg      RL	mg/kg      RL	mg/kg      RL
Chloride		275 X      49.7	256      50.4	295      50.3	580      50.2	121      50.0	172      49.9

BRL - Below Reporting Limit

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





Xenco

# Certificate of Analysis Summary 666135

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Wed 07.01.2020 13:38

Report Date: 07.02.2020 17:39

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	666135-007					
	<i>Field Id:</i>	Bttm- 17					
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL					
	<i>Sampled:</i>	07.01.2020 11:12					
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	07.01.2020 14:59					
	<i>Analyzed:</i>	07.01.2020 20:36					
	<i>Units/RL:</i>	mg/kg      RL					
Chloride		168      50.5					

BRL - Below Reporting Limit

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



Xenco

# Analytical Report 666135

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**07.02.2020**

Collected By: Client

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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)  
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)  
Xenco-Carlsbad (LELAP): Louisiana (05092)  
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)  
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)  
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.02.2020

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **666135**

**Horned Owl Fed #3**

Project Address: Eddy, NM

**Sheldon Hitchcock:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 666135. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 666135 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

---

**Jessica Kramer**

Project Manager

*A Small Business and Minority Company*

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

**Sample Cross Reference 666135****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
Bttm- 11	S	07.01.2020 11:00		666135-001
Bttm- 12	S	07.01.2020 11:02		666135-002
Bttm- 13	S	07.01.2020 11:04		666135-003
Bttm- 14	S	07.01.2020 11:06		666135-004
Bttm- 15	S	07.01.2020 11:08		666135-005
Bttm- 16	S	07.01.2020 11:10		666135-006
Bttm- 17	S	07.01.2020 11:12		666135-007



Xenco

## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Horned Owl Fed #3*

Project ID:

Work Order Number(s): 666135

Report Date: 07.02.2020

Date Received: 07.01.2020

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**Sample receipt non conformances and comments:**

None

---

**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3130578 Chloride by EPA 300

Lab Sample ID 666135-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 666135-001, -002, -003, -004, -005, -006, -007.

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



## Certificate of Analytical Results 666135

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm- 11**  
Lab Sample Id: 666135-001

Matrix: Soil  
Date Collected: 07.01.2020 11:00

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	275	49.7	mg/kg	07.01.2020 19:36	X	5



## Certificate of Analytical Results 666135

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm- 12**  
Lab Sample Id: 666135-002

Matrix: Soil  
Date Collected: 07.01.2020 11:02

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	256	50.4	mg/kg	07.01.2020 19:54		5



## Certificate of Analytical Results 666135

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm- 13**  
Lab Sample Id: 666135-003

Matrix: Soil  
Date Collected: 07.01.2020 11:04

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	295	50.3	mg/kg	07.01.2020 20:00		5





## Certificate of Analytical Results 666135

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm- 14**  
Lab Sample Id: 666135-004

Matrix: Soil  
Date Collected: 07.01.2020 11:06

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	580	50.2	mg/kg	07.01.2020 20:18		5



## Certificate of Analytical Results 666135

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm- 15**  
Lab Sample Id: 666135-005

Matrix: Soil  
Date Collected: 07.01.2020 11:08

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	121	50.0	mg/kg	07.01.2020 20:24		5



## Certificate of Analytical Results 666135

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm- 16**  
Lab Sample Id: 666135-006

Matrix: Soil  
Date Collected: 07.01.2020 11:10

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	172	49.9	mg/kg	07.01.2020 20:30		5



## Certificate of Analytical Results 666135

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **Bttm- 17**  
Lab Sample Id: 666135-007

Matrix: Soil  
Date Collected: 07.01.2020 11:12

Date Received: 07.01.2020 13:38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.01.2020 14:59

Basis: Wet Weight

Seq Number: 3130578

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	168	50.5	mg/kg	07.01.2020 20:36		5

## 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

Horned Owl Fed #3

**Analytical Method: Chloride by EPA 300**

Seq Number: 3130578

MB Sample Id: 7706575-1-BLK

Matrix: Solid

LCS Sample Id: 7706575-1-BKS

Prep Method: E300P

Date Prep: 07.01.2020

LCSD Sample Id: 7706575-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	256	102	264	106	90-110	3	20	mg/kg	07.01.2020 18:00	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3130578

Parent Sample Id: 666068-002

Matrix: Soil

MS Sample Id: 666068-002 S

Prep Method: E300P

Date Prep: 07.01.2020

MSD Sample Id: 666068-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5010	203	5210	99	5210	100	90-110	0	20	mg/kg	07.01.2020 18:18	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3130578

Parent Sample Id: 666135-001

Matrix: Soil

MS Sample Id: 666135-001 S

Prep Method: E300P

Date Prep: 07.01.2020

MSD Sample Id: 666135-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	275	199	418	72	419	72	90-110	0	20	mg/kg	07.01.2020 19:42	X

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

1000135

Client Name: COG-Artesia

Site Manager:

Sheldon Hitchcock

Project Name:

Project Location: (county, state)

Horrell Owl Fed 3  
Eddy, NM

Project #:

Invoice to:

Sheldon Hitchcock

Receiving Laboratory:

Sampler Name:

Sheldon Hitchcock

Comments:

Xenob

LAB #  
(LAB USE ONLY)

SAMPLE IDENTIFICATION

SAMPLING

YEAR: 2020

DATE

TIME

MATRIX

WATER

SOIL

HCL

HNO<sub>3</sub>

ICE

PRESERVATIVE METHOD

# CONTAINERS

(C)omposite/(G)rab

TPH 8015M ( GRO - DRO - MRO)

BTEX 8021B

Chloride

Hold

ANALYSIS REQUEST  
(Circle or Specify Method No.)

Received by:

Date: 7/1/20

Time: 13:38

Received by:

Date: 7/1/20

Time: 13:38

Received by:

Date:

Time:

Received by:

Date:

Time:

Received by:

Date:

Time:

Received by:

Date:

Time:

LAB USE ONLY

Sample Temperature

1.0/0.8

REMARKS:

- ☒ 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

## Certificate of Analysis Summary 667902

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Wed 07.22.2020 12:15

Report Date: 07.23.2020 13:51

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	667902-001	667902-002	667902-003	667902-004	667902-005	667902-006
	<i>Field Id:</i>	B-18	B-19	B-20	B-21	B-22	B-23
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	07.22.2020 10:00	07.22.2020 10:02	07.22.2020 10:04	07.22.2020 10:06	07.22.2020 10:08	07.22.2020 10:10
Chloride by EPA 300	<i>Extracted:</i>	07.22.2020 15:00	07.22.2020 15:00	07.22.2020 15:00	07.22.2020 15:00	07.22.2020 15:00	07.22.2020 15:00
	<i>Analyzed:</i>	07.22.2020 18:31	07.22.2020 18:47	07.22.2020 18:53	07.22.2020 18:59	07.22.2020 19:04	07.22.2020 19:10
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		63.5 9.98	64.6 9.98	62.7 9.96	64.4 9.98	66.9 10.0	61.6 9.94

BRL - Below Reporting Limit

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





## Certificate of Analysis Summary 667902

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Wed 07.22.2020 12:15

Report Date: 07.23.2020 13:51

Project Manager: Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b> 667902-007 <b>Field Id:</b> SW-13 <b>Depth:</b> <b>Matrix:</b> SOIL <b>Sampled:</b> 07.22.2020 10:20					
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b> 07.22.2020 14:00 <b>Analyzed:</b> 07.22.2020 17:48 <b>Units/RL:</b> mg/kg RL					
Benzene	<0.00200 0.00200					
Toluene	<0.00200 0.00200					
Ethylbenzene	<0.00200 0.00200					
m,p-Xylenes	<0.00399 0.00399					
o-Xylene	<0.00200 0.00200					
Total Xylenes	<0.00200 0.00200					
Total BTEX	<0.00200 0.00200					
<b>Chloride by EPA 300</b>	<b>Extracted:</b> 07.22.2020 15:00 <b>Analyzed:</b> 07.22.2020 19:15 <b>Units/RL:</b> mg/kg RL					
Chloride	636 9.96					
<b>TPH By SW8015 Mod</b>	<b>Extracted:</b> 07.22.2020 14:20 <b>Analyzed:</b> 07.23.2020 10:41 <b>Units/RL:</b> mg/kg RL					
Gasoline Range Hydrocarbons	<49.9 49.9					
Diesel Range Organics	<49.9 49.9					
Motor Oil Range Hydrocarbons (MRO)	<49.9 49.9					
Total TPH	<49.9 49.9					

BRL - Below Reporting Limit

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



# Analytical Report 667902

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**07.23.2020**

Collected By: Client

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

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

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

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



07.23.2020

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **667902**

**Horned Owl Fed #3**

Project Address: Eddy, NM

**Sheldon Hitchcock:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 667902. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 667902 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

---

**Jessica Kramer**

Project Manager

*A Small Business and Minority Company*

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

**Sample Cross Reference 667902****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B-18	S	07.22.2020 10:00		667902-001
B-19	S	07.22.2020 10:02		667902-002
B-20	S	07.22.2020 10:04		667902-003
B-21	S	07.22.2020 10:06		667902-004
B-22	S	07.22.2020 10:08		667902-005
B-23	S	07.22.2020 10:10		667902-006
SW-13	S	07.22.2020 10:20		667902-007



## CASE NARRATIVE

***Client Name: COG Operating LLC***

***Project Name: Horned Owl Fed #3***

Project ID:

Work Order Number(s): 667902

Report Date: 07.23.2020

Date Received: 07.22.2020

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**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None

**Certificate of Analytical Results 667902****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id: **B-18**  
Lab Sample Id: 667902-001

Matrix: Soil  
Date Collected: 07.22.2020 10:00

Date Received: 07.22.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.22.2020 15:00

Basis: Wet Weight

Seq Number: 3132391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	63.5	9.98	mg/kg	07.22.2020 18:31		1

**Certificate of Analytical Results 667902****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id: **B-19**  
Lab Sample Id: 667902-002

Matrix: Soil  
Date Collected: 07.22.2020 10:02

Date Received: 07.22.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.22.2020 15:00

Basis: Wet Weight

Seq Number: 3132391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	64.6	9.98	mg/kg	07.22.2020 18:47		1



## Certificate of Analytical Results 667902

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-20**

Matrix: Soil

Date Received: 07.22.2020 12:15

Lab Sample Id: 667902-003

Date Collected: 07.22.2020 10:04

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.22.2020 15:00

Basis: Wet Weight

Seq Number: 3132391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	62.7	9.96	mg/kg	07.22.2020 18:53		1





## Certificate of Analytical Results 667902

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-21**

Matrix: Soil

Date Received: 07.22.2020 12:15

Lab Sample Id: 667902-004

Date Collected: 07.22.2020 10:06

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.22.2020 15:00

Basis: Wet Weight

Seq Number: 3132391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	64.4	9.98	mg/kg	07.22.2020 18:59		1

**Certificate of Analytical Results 667902****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id: **B-22**

Matrix: Soil

Date Received: 07.22.2020 12:15

Lab Sample Id: 667902-005

Date Collected: 07.22.2020 10:08

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.22.2020 15:00

Basis: Wet Weight

Seq Number: 3132391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>66.9</b>	10.0	mg/kg	07.22.2020 19:04		1



## Certificate of Analytical Results 667902

### COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **B-23**

Matrix: Soil

Date Received: 07.22.2020 12:15

Lab Sample Id: 667902-006

Date Collected: 07.22.2020 10:10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.22.2020 15:00

Basis: Wet Weight

Seq Number: 3132391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.6	9.94	mg/kg	07.22.2020 19:10		1



# Certificate of Analytical Results 667902

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-13**  
Lab Sample Id: 667902-007

Matrix: Soil  
Date Collected: 07.22.2020 10:20

Date Received: 07.22.2020 12:15

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3132391

Prep Method: E300P

% Moisture:

Date Prep: 07.22.2020 15:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	636	9.96	mg/kg	07.22.2020 19:15		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3132405

Prep Method: SW8015P

% Moisture:

Date Prep: 07.22.2020 14:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	07.23.2020 10:41	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	07.23.2020 10:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.23.2020 10:41	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.23.2020 10:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	07.23.2020 10:41	
o-Terphenyl	84-15-1	108	%	70-135	07.23.2020 10:41	



# Certificate of Analytical Results 667902

## COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id: **SW-13**  
Lab Sample Id: 667902-007

Matrix: Soil  
Date Collected: 07.22.2020 10:20

Date Received: 07.22.2020 12:15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.22.2020 14:00

Basis: Wet Weight

Seq Number: 3132403

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 17:48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.2020 17:48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 17:48	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.22.2020 17:48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 17:48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 17:48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.2020 17:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	98	%	70-130	07.22.2020 17:48	
4-Bromofluorobenzene	460-00-4	95	%	70-130	07.22.2020 17:48	

## 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

Horned Owl Fed #3

**Analytical Method: Chloride by EPA 300**

Seq Number: 3132391

MB Sample Id: 7707891-1-BLK

Matrix: Solid

LCS Sample Id: 7707891-1-BKS

Prep Method: E300P

Date Prep: 07.22.2020

LCSD Sample Id: 7707891-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	261	104	269	108	90-110	3	20	mg/kg	07.22.2020 17:46	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3132391

Parent Sample Id: 667900-001

Matrix: Soil

MS Sample Id: 667900-001 S

Prep Method: E300P

Date Prep: 07.22.2020

MSD Sample Id: 667900-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	40.6	200	244	102	244	102	90-110	0	20	mg/kg	07.22.2020 18:03	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3132391

Parent Sample Id: 667902-007

Matrix: Soil

MS Sample Id: 667902-007 S

Prep Method: E300P

Date Prep: 07.22.2020

MSD Sample Id: 667902-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	636	200	838	101	838	101	90-110	0	20	mg/kg	07.22.2020 19:21	

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3132405

MB Sample Id: 7707899-1-BLK

Matrix: Solid

LCS Sample Id: 7707899-1-BKS

Prep Method: SW8015P

Date Prep: 07.22.2020

LCSD Sample Id: 7707899-1-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	935	94	1010	101	70-135	8	35	mg/kg	07.22.2020 10:11	
Diesel Range Organics	<50.0	1000	1040	104	1120	112	70-135	7	35	mg/kg	07.22.2020 10:11	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		122		126		70-135	%	07.22.2020 10:11
o-Terphenyl	109		110		118		70-135	%	07.22.2020 10:11

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3132405

Matrix: Solid

MB Sample Id: 7707899-1-BLK

Prep Method: SW8015P

Date Prep: 07.22.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.22.2020 09:50	

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

Horned Owl Fed #3

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3132405

Parent Sample Id: 667902-007

Matrix: Soil

MS Sample Id: 667902-007 S

Prep Method: SW8015P

Date Prep: 07.22.2020

MSD Sample Id: 667902-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	863	86	878	88	70-135	2	35	mg/kg	07.22.2020 14:42	
Diesel Range Organics	<50.0	1000	978	98	959	96	70-135	2	35	mg/kg	07.22.2020 14:42	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		117		70-135	%	07.22.2020 14:42
o-Terphenyl	110		105		70-135	%	07.22.2020 14:42

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3132403

MB Sample Id: 7707875-1-BLK

Matrix: Solid

LCS Sample Id: 7707875-1-BKS

Prep Method: SW5035A

Date Prep: 07.22.2020

LCSD Sample Id: 7707875-1-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	0.115	115	0.122	122	70-130	6	35	mg/kg	07.22.2020 15:28	
Toluene	<0.00200	0.100	0.110	110	0.116	116	70-130	5	35	mg/kg	07.22.2020 15:28	
Ethylbenzene	<0.00200	0.100	0.102	102	0.108	108	71-129	6	35	mg/kg	07.22.2020 15:28	
m,p-Xylenes	<0.00400	0.200	0.206	103	0.218	109	70-135	6	35	mg/kg	07.22.2020 15:28	
o-Xylene	<0.00200	0.100	0.102	102	0.108	108	71-133	6	35	mg/kg	07.22.2020 15:28	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		100		100		70-130	%	07.22.2020 15:28
4-Bromofluorobenzene	103		102		102		70-130	%	07.22.2020 15:28

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3132403

Parent Sample Id: 667902-007

Matrix: Soil

MS Sample Id: 667902-007 S

Prep Method: SW5035A

Date Prep: 07.22.2020

MSD Sample Id: 667902-007 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	0.125	126	0.113	113	70-130	10	35	mg/kg	07.22.2020 16:32	
Toluene	<0.00199	0.0996	0.117	117	0.106	106	70-130	10	35	mg/kg	07.22.2020 16:32	
Ethylbenzene	<0.00199	0.0996	0.110	110	0.0989	99	71-129	11	35	mg/kg	07.22.2020 16:32	
m,p-Xylenes	<0.00398	0.199	0.224	113	0.200	101	70-135	11	35	mg/kg	07.22.2020 16:32	
o-Xylene	<0.00199	0.0996	0.110	110	0.0985	99	71-133	11	35	mg/kg	07.22.2020 16:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		98		70-130	%	07.22.2020 16:32
4-Bromofluorobenzene	103		100		70-130	%	07.22.2020 16:32

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

667902

Client Name:		COG-Artesia		Site Manager:		Sheldon Hitchcock	
Project Name:		Hondou Field #3					
Project Location:		(county, state) Edray, NM		Project #:			
Invoice to:		Sheldon Hitchcock					
Receiving Laboratory:		X-2000		Sampler Name:		Sheldon Hitchcock	
Comments:							

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS	(C)omposite/(G)rab		
		YEAR	DATE	TIME	WATER	SOIL	HCL			HNO <sub>3</sub>	ICE
	B-18		7/22	10:00		X		X		1	C
	B-14			10:02							
	B-20			10:04							
	B-21			10:06							
	B-22			10:08							
	B-23			10:10							
	BV-13			10:20							

Inquired by:	Date:	Time:	Received by:	Date:	Time:
Sheldon Hitchcock	7/22/20	12:15	[Signature]	7/22/20	12:15
Inquired by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY	REMARKS:
Sample Temperature	<input checked="" type="checkbox"/> RUSH: Same Day (24 hr) 48 hr 72 hr
3.2/3.0	<input type="checkbox"/> Rush Charges Authorized
	<input type="checkbox"/> Special Report Limits or TRRP Report

(Circle) HAND DELIVERED	FEDEX	UPS	Tracking #:
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ORIGINAL COPY

# Eurofins Xenco, LLC

## Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 07.22.2020 12.15.00 PM

Work Order #: 667902

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

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

Samples received in bulk containers

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 07.22.2020

Checklist reviewed by:



Jessica Kramer

Date: 07.22.2020

## Certificate of Analysis Summary 668736

COG Operating LLC, Artesia, NM

Project Name: Horned Owl Fed #3

Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy, NM

Date Received in Lab: Thu 07.30.2020 15:30

Report Date: 07.31.2020 10:58

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	668736-001					
	<i>Field Id:</i>	SW-13					
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL					
	<i>Sampled:</i>	07.29.2020 14:00					
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	07.30.2020 17:00					
	<i>Analyzed:</i>	07.30.2020 18:04					
	<i>Units/RL:</i>	mg/kg      RL					
Chloride		48.3      10.0					

BRL - Below Reporting Limit

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





# Analytical Report 668736

for

**COG Operating LLC**

**Project Manager: Sheldon Hitchcock**

**Horned Owl Fed #3**

**07.31.2020**

Collected By: Client

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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)  
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)  
Xenco-Carlsbad (LELAP): Louisiana (05092)  
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)  
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)  
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.31.2020

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **668736**

**Horned Owl Fed #3**

Project Address: Eddy, NM

**Sheldon Hitchcock:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 668736. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 668736 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

---

**Jessica Kramer**

Project Manager

*A Small Business and Minority Company*

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



Sample Cross Reference 668736

COG Operating LLC, Artesia, NM

Horned Owl Fed #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-13	S	07.29.2020 14:00		668736-001



## CASE NARRATIVE

***Client Name: COG Operating LLC***

***Project Name: Horned Owl Fed #3***

Project ID:

Work Order Number(s): 668736

Report Date: 07.31.2020

Date Received: 07.30.2020

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**Sample receipt non conformances and comments:**

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**Sample receipt non conformances and comments per sample:**

None

**Certificate of Analytical Results 668736****COG Operating LLC, Artesia, NM**

Horned Owl Fed #3

Sample Id: **SW-13**  
Lab Sample Id: 668736-001

Matrix: Soil  
Date Collected: 07.29.2020 14:00

Date Received: 07.30.2020 15:30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.30.2020 17:00

Basis: Wet Weight

Seq Number: 3133046

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	48.3	10.0	mg/kg	07.30.2020 18:04		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

Horned Owl Fed #3

**Analytical Method: Chloride by EPA 300**

Seq Number: 3133046

MB Sample Id: 7708394-1-BLK

Matrix: Solid

LCS Sample Id: 7708394-1-BKS

Prep Method: E300P

Date Prep: 07.30.2020

LCSD Sample Id: 7708394-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	269	108	265	106	90-110	1	20	mg/kg	07.30.2020 12:05	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3133046

Parent Sample Id: 668618-002

Matrix: Soil

MS Sample Id: 668618-002 S

Prep Method: E300P

Date Prep: 07.30.2020

MSD Sample Id: 668618-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5140	200	5350	105	5340	100	90-110	0	20	mg/kg	07.30.2020 12:21	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3133046

Parent Sample Id: 668741-001

Matrix: Soil

MS Sample Id: 668741-001 S

Prep Method: E300P

Date Prep: 07.30.2020

MSD Sample Id: 668741-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	73.7	202	287	106	286	105	90-110	0	20	mg/kg	07.30.2020 18:53	

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

### **Analysis Request of Chain of Custody Record**



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

Page 1 of 1

Ue8734

[illegible]

ORIGINAL COPY

# Eurofins Xenco, LLC

## Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 07.30.2020 03.30.00 PM

Work Order #: 668736

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Elizabeth McClellan

Date: 07.30.2020

Checklist reviewed by:



Jessica Kramer

Date: 07.31.2020

# APPENDIX D



SE

S

SW

120

150

80

210

240

☉ 178°S (T) ☉ 32°1'12"N, 104°14'36"W ±16ft ▲ 3396ft

**COG OPERATING LLC**  
HORNERD OWL FEDERAL #3H  
UL B SEC.25-T26S-R26E  
190' FNL & 1810' FEL  
EDDY COUNTY, NM  
API #30-015-42502  
NMNM-114965

30 Apr 2020, 10:14:54





SE

S

SW

120

150

180

210

240

☀ 176°S (T) ● 32°1'10"N, 104°14'39"W ±16ft ▲ 3394ft

30 Apr 2020, 10:17:26



# Photo GPS Cam



WGS 84: 31.842084, -104.2232136

Date: Aug 3, 2020 Time: 9:07:58 AM

**PHOTO GPS**