



September 9, 2020

Oil Conservation Division, District I  
1625 N. French Drive  
Hobbs, New Mexico 88240

**Re: Closure Report**  
**Pickelhaube State CTB (4.29.20)**  
**Tracking#: NRM2013929857**  
**GPS: 32.17926, -103.42536**  
**Unit Letter C, Section 36, Township 24 South, Range 34 East**  
**Lea 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 Pickelhaube State CTB, located in Unit Letter C, Section 36, Township 24 South, Range 34 East Lea County, New Mexico. The spill site coordinates are 32.17926, -103.42536.

#### **BACKGROUND**

The release was discovered on April 29, 2020. An initial C-141 report was submitted and accepted by the New Mexico Oil Conservation Division (NMOCD). The release was caused by a malfunction of the heater. The heater had an upset causing oil to overrun the vessel and go into the gas line. This resulted in oil getting into the low-pressure gas line causing the flare to catch on fire. The majority of fluids were burned during the fire. The fire/release was contained to the pad. Approximately one (1) barrel of crude was released. The initial C-141 and final C-141 are attached in Appendix A.

#### **GROUNDWATER AND REGULATORY**

A search of a groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) and the United States Geological Survey (USGS) was conducted to determine the average depth to groundwater within a one (1) Mile radius of the Release Site and identify any registered water wells within a 1/2 Mile of the Release Site. There was a USGS well at just over a half mile and one at one mile and just over one mile. These three wells indicate that the average depth to water is greater than one hundred (100) feet BGS. The information for these wells is found 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 low potential for cave and karst, and no other receptors (water wells, playas, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The delineation and closure criteria are listed below:

#### **General Site Characterization and Groundwater:**

Site Characterization	Average Groundwater Depth (ft.)
Low Karst	<100 feet

**Delineation and Closure Criteria:**

Remedial Action Levels (RALs)	
Chlorides	20,000 mg/kg
TPH (GRO and DRO and MRO)	1,000 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

**INITIAL ASSESMENT**

- Prior to performing the remediation, two (2) samples (S-1 and S-2) were collected to evaluate the release area. The sample results are shown in Table 1. Referring to Table 1, the samples indicated that the impacted areas were above regulatory levels from 6" to 1.0' below surface for TPH.

**REMEDIAL ACTIONS**

- The impacted area around S1 and S2 were excavated to a depth of approximately 2.0' below surface.
- Once excavated to the appropriate depth, confirmation soil samples were taken from excavation bottom and sidewalls per NMAC 19.15.29. Table 1 shows the sample depths and analytical results.
- All the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- The site was backfilled with clean "like" material.
- The analytical data shown in Table 1 shows that the remediation meets NMOCD closure criteria (NMAC 19.15.29.12(E) Table I).

**SAMPLING AND BACKFILLING**

Once excavated, soil samples were collected from the bottom and sidewalls to confirm the removal of impacted soil. Composite bottom and sidewall samples were collected every 200 square feet to be representative of the release area. All samples were below Table 1 closure criterial levels. Once completed, the excavated area was backfilled with non-contaminated material with concentrations below 600 mg/kg of chlorides.

**CLOSURE REQUEST**

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division grant closure approval for the Pickelhaube State CTB that occurred on April 29, 2020 (Tracking # NRM2013929857).

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

Sincerely,



Jacqui Harris  
Senior HSE Coordinator  
[Jharris2@concho.com](mailto:Jharris2@concho.com)

# Maps

# Pickelhaube State CTB

Site and Sample Map

**Legend**

-  Bottom Hole Samples
-  Sidewall Samples
-  Initial Samples
-  Pickelhaube St CTB Release area



# Table of Analytical Data

**Table 1  
COG Operating LLC.  
Pickelhaube State CTB  
Lea County, New Mexico**

Sample ID	Sample Date	Soil Status		TPH (mg/kg)						Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)											
		In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO				Total										
<b>Average Depth to Groundwater (ft)</b>		<b>&gt;100'</b>																					
<b>NMOCD RRAL Limits (mg/kg)</b>				<b>-</b>		<b>-</b>		<b>-</b>		<b>2,500</b>		<b>-</b>		<b>-</b>		<b>1,000</b>		<b>10</b>		<b>50</b>		<b>20,000</b>	
<b>Initial Assessment Sampling</b>																							
S1 @ 6"	7/28/2020		X	<250	17,400	2,240	<b>19,640</b>	<250	17,400	<b>17,400.00</b>	<0.00400	0.0643	81.6										
S1 @ 1'	7/28/2020		X	<250	6,460	1,170	<b>7,630</b>	<250	6,460	<b>6,460.00</b>	<0.00199	0.0166	46.3										
S2 @ 6"	7/28/2020		X	<249	19,100	2,700	<b>21,800</b>	<249	19,100	<b>19,100.00</b>	<0.00200	0.161	50.7										
S2 @ 1'	7/28/2020		X	<50.1	2,630	435	<b>3,065</b>	<50.1	2,630	<b>2,630.00</b>	<0.00199	0.172	42.0										
<b>Confirmation Sampling</b>																							
T1 (1' bottom)	8/19/2020		X	<50.3	<50.3	<50.3	<50.3	<50.3	<50.3	<50.3	<0.00200	<0.00200	<9.96										
T1 (1' bottom)	8/19/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.00198	<0.00198	<9.94										
T2 (1' bottom)	8/19/2020		X	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	14.0										
T2 (1' bottom)	8/19/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<9.98										
SW1	8/21/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	11.3										
SW2	8/21/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00201	<0.00201	23.9										

(-) Not Analyzed

  Soil Excavated and Removed

# PHOTOS



Open Excavation



Backfilled

# Appendix A

## C-141

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

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

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

### Location of Release Source

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

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

Unit Letter	Section	Township	Range	County

Surface Owner:  State  Federal  Tribal  Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

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

<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

State of New Mexico  
Oil Conservation Division

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>Patricia Zapanta</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.

Incident ID	
District RP	
Facility ID	
Application ID	

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

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

Signature: Jaqui Herrera Date: \_\_\_\_\_

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

**OCD Only**

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

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

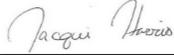
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled 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:  \_\_\_\_\_ 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**

## **Site Assessment Data**

# Pickelhaube State CTB

Karst Occurance Map

## Legend

-  Low Karst Potential
-  Pickelhaube ST CTB

Battle Axe Rd

2

 Pickelhaube ST CTB

Google Earth

© 2020 Google

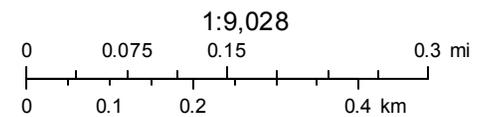


1000 ft

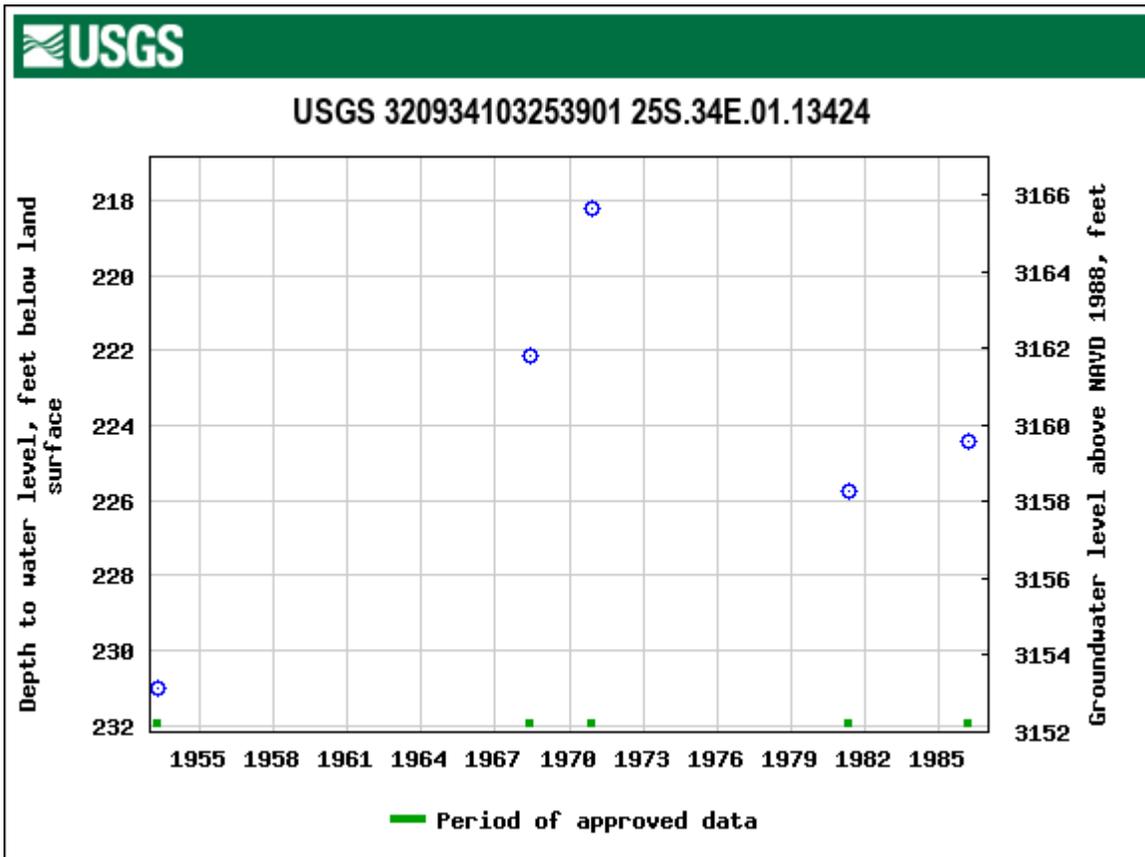
# New Mexico NFHL Data

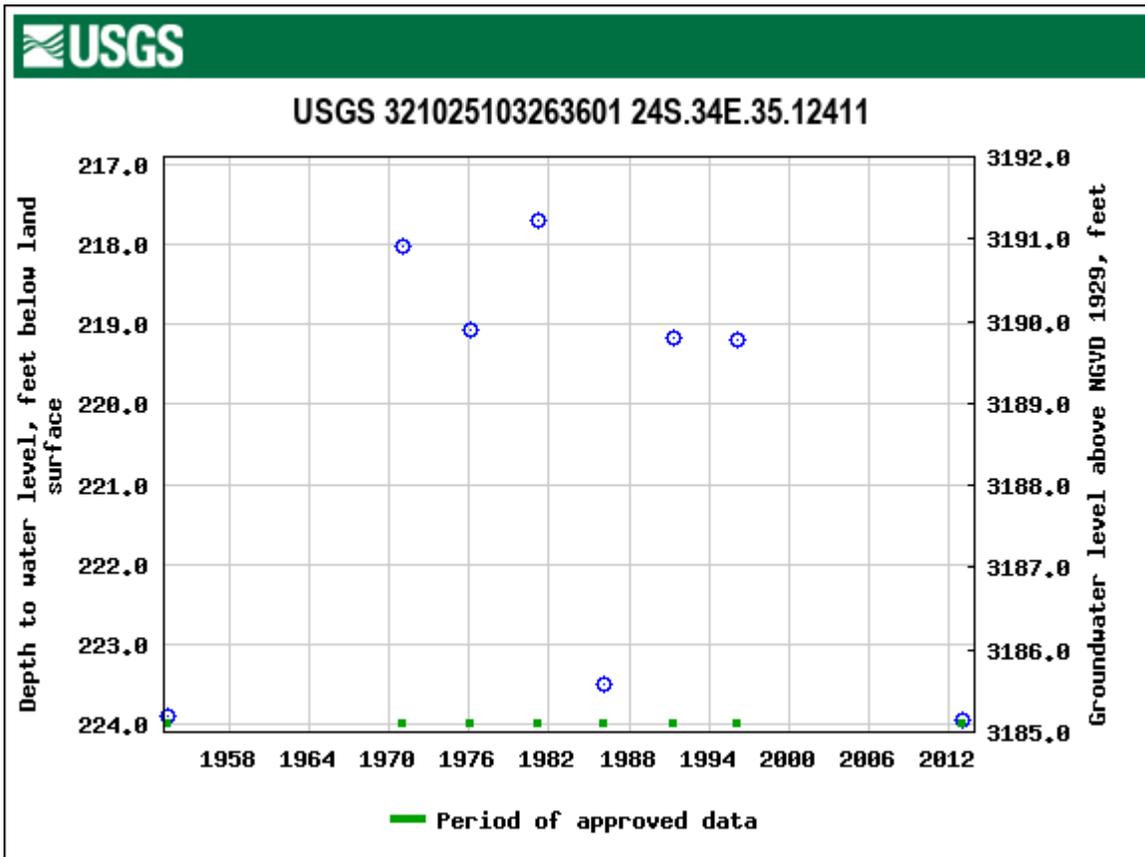


September 8, 2020



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







# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">C 02401</a>	CUB	LE	2	2	1	01	25S	34E	648534	3559896*	1482	275	260	15	

Average Depth to Water: **260 feet**  
 Minimum Depth: **260 feet**  
 Maximum Depth: **260 feet**

**Record Count: 1**

**UTM NAD83 Radius Search (in meters):**

**Easting (X):** 648412

**Northing (Y):** 3561373

**Radius:** 1610

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

# Appendix C

## Analytical Reports









# Sample Cross Reference 668459

## COG Operating LLC, Artesia, NM

Pickelhaube State CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S1 @ 6"	S	07.28.2020 10:00	6 In	668459-001
S1 @ 1'	S	07.28.2020 10:05	1 ft	668459-002
S2 @ 6"	S	07.28.2020 10:10	6 In	668459-003
S2 @ 1'	S	07.28.2020 10:15	1 ft	668459-004



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Pickelhaube State CTB*

Project ID:  
Work Order Number(s): 668459

Report Date: 07.30.2020  
Date Received: 07.28.2020

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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 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S1 @ 6"** Matrix: Soil Date Received: 07.28.2020 16:19  
 Lab Sample Id: 668459-001 Date Collected: 07.28.2020 10:00 Sample Depth: 6 In  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132885

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	81.6	9.92	mg/kg	07.28.2020 21:33		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132887

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<250	250	mg/kg	07.29.2020 15:17	U	5
Diesel Range Organics	C10C28DRO	17400	250	mg/kg	07.29.2020 15:17		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	2240	250	mg/kg	07.29.2020 15:17		5
Total TPH	PHC635	19600	250	mg/kg	07.29.2020 15:17		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	07.29.2020 15:17	
o-Terphenyl	84-15-1	104	%	70-135	07.29.2020 15:17	



# Certificate of Analytical Results 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S1 @ 6"**  
Lab Sample Id: 668459-001

Matrix: Soil  
Date Collected: 07.28.2020 10:00

Date Received: 07.28.2020 16:19  
Sample Depth: 6 In

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 07.28.2020 17:11

Basis: Wet Weight

Seq Number: 3132944

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00400	0.00400	mg/kg	07.29.2020 07:51	U	1
Toluene	108-88-3	<0.00400	0.00400	mg/kg	07.29.2020 07:51	U	1
Ethylbenzene	100-41-4	<0.00400	0.00400	mg/kg	07.29.2020 07:51	U	1
<b>m,p-Xylenes</b>	179601-23-1	<b>0.0193</b>	0.00800	mg/kg	07.29.2020 07:51		1
<b>o-Xylene</b>	95-47-6	<b>0.0450</b>	0.00400	mg/kg	07.29.2020 07:51		1
<b>Total Xylenes</b>	1330-20-7	<b>0.0643</b>	0.00400	mg/kg	07.29.2020 07:51		1
<b>Total BTEX</b>		<b>0.0643</b>	0.00400	mg/kg	07.29.2020 07:51		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	91	%	70-130	07.29.2020 07:51		
1,4-Difluorobenzene	540-36-3	99	%	70-130	07.29.2020 07:51		



# Certificate of Analytical Results 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S1 @ 1'** Matrix: Soil Date Received: 07.28.2020 16:19  
 Lab Sample Id: 668459-002 Date Collected: 07.28.2020 10:05 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132885

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.3	9.90	mg/kg	07.28.2020 21:54		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132887

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<250	250	mg/kg	07.29.2020 15:37	U	5
Diesel Range Organics	C10C28DRO	6460	250	mg/kg	07.29.2020 15:37		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	1170	250	mg/kg	07.29.2020 15:37		5
Total TPH	PHC635	7630	250	mg/kg	07.29.2020 15:37		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	07.29.2020 15:37	
o-Terphenyl	84-15-1	112	%	70-135	07.29.2020 15:37	



# Certificate of Analytical Results 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S1 @ 1'** Matrix: Soil Date Received: 07.28.2020 16:19  
 Lab Sample Id: 668459-002 Date Collected: 07.28.2020 10:05 Sample Depth: 1 ft  
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5035A  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 07.28.2020 17:11 Basis: Wet Weight  
 Seq Number: 3132944

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.29.2020 06:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.29.2020 06:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.29.2020 06:49	U	1
<b>m,p-Xylenes</b>	179601-23-1	<b>0.00658</b>	0.00398	mg/kg	07.29.2020 06:49		1
<b>o-Xylene</b>	95-47-6	<b>0.0100</b>	0.00199	mg/kg	07.29.2020 06:49		1
<b>Total Xylenes</b>	1330-20-7	<b>0.0166</b>	0.00199	mg/kg	07.29.2020 06:49		1
<b>Total BTEX</b>		<b>0.0166</b>	0.00199	mg/kg	07.29.2020 06:49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	97	%	70-130	07.29.2020 06:49	
4-Bromofluorobenzene	460-00-4	84	%	70-130	07.29.2020 06:49	



# Certificate of Analytical Results 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S2 @ 6"** Matrix: Soil Date Received: 07.28.2020 16:19  
 Lab Sample Id: 668459-003 Date Collected: 07.28.2020 10:10 Sample Depth: 6 In  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132885

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	50.7	9.94	mg/kg	07.28.2020 22:01		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132887

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<249	249	mg/kg	07.29.2020 15:57	U	5
Diesel Range Organics	C10C28DRO	19100	249	mg/kg	07.29.2020 15:57		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	2700	249	mg/kg	07.29.2020 15:57		5
Total TPH	PHC635	21800	249	mg/kg	07.29.2020 15:57		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	07.29.2020 15:57	
o-Terphenyl	84-15-1	87	%	70-135	07.29.2020 15:57	



# Certificate of Analytical Results 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S2 @ 6"** Matrix: Soil Date Received: 07.28.2020 16:19  
 Lab Sample Id: 668459-003 Date Collected: 07.28.2020 10:10 Sample Depth: 6 In  
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5035A  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 07.28.2020 17:11 Basis: Wet Weight  
 Seq Number: 3132944

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.29.2020 07:10	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.29.2020 07:10	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.29.2020 07:10	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.29.2020 07:10	U	1
<b>o-Xylene</b>	95-47-6	<b>0.161</b>	0.00200	mg/kg	07.29.2020 07:10		1
<b>Total Xylenes</b>	1330-20-7	<b>0.161</b>	0.00200	mg/kg	07.29.2020 07:10		1
<b>Total BTEX</b>		<b>0.161</b>	0.00200	mg/kg	07.29.2020 07:10		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	70-130	07.29.2020 07:10	
1,4-Difluorobenzene	540-36-3	93	%	70-130	07.29.2020 07:10	



# Certificate of Analytical Results 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S2 @ 1'** Matrix: Soil Date Received: 07.28.2020 16:19  
 Lab Sample Id: 668459-004 Date Collected: 07.28.2020 10:15 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132885

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	42.0	10.0	mg/kg	07.28.2020 22:08		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 07.28.2020 17:15 Basis: Wet Weight  
 Seq Number: 3132887

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	07.29.2020 14:56	U	1
Diesel Range Organics	C10C28DRO	2630	50.1	mg/kg	07.29.2020 14:56		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	435	50.1	mg/kg	07.29.2020 14:56		1
Total TPH	PHC635	3070	50.1	mg/kg	07.29.2020 14:56		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	07.29.2020 14:56	
o-Terphenyl	84-15-1	102	%	70-135	07.29.2020 14:56	



# Certificate of Analytical Results 668459

## COG Operating LLC, Artesia, NM Pickelhaube State CTB

Sample Id: **S2 @ 1'** Matrix: Soil Date Received: 07.28.2020 16:19  
 Lab Sample Id: 668459-004 Date Collected: 07.28.2020 10:15 Sample Depth: 1 ft  
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5035A  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 07.28.2020 17:11 Basis: Wet Weight  
 Seq Number: 3132944

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.29.2020 07:30	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.29.2020 07:30	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.29.2020 07:30	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.29.2020 07:30	U	1
<b>o-Xylene</b>	95-47-6	<b>0.172</b>	0.00199	mg/kg	07.29.2020 07:30		1
<b>Total Xylenes</b>	1330-20-7	<b>0.172</b>	0.00199	mg/kg	07.29.2020 07:30		1
<b>Total BTEX</b>		<b>0.172</b>	0.00199	mg/kg	07.29.2020 07:30		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	97	%	70-130	07.29.2020 07:30		
4-Bromofluorobenzene	460-00-4	110	%	70-130	07.29.2020 07:30		





# QC Summary 668459

## COG Operating LLC Pickelhaube State CTB

**Analytical Method: Chloride by EPA 300**

Seq Number: 3132885  
MB Sample Id: 7708275-1-BLK

Matrix: Solid

LCS Sample Id: 7708275-1-BKS

Prep Method: E300P

Date Prep: 07.28.2020

LCSD Sample Id: 7708275-1-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	07.28.2020 21:19	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3132885  
Parent Sample Id: 668459-001

Matrix: Soil

MS Sample Id: 668459-001 S

Prep Method: E300P

Date Prep: 07.28.2020

MSD Sample Id: 668459-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	81.6	199	294	107	294	106	90-110	0	20	mg/kg	07.28.2020 21:40	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3132885  
Parent Sample Id: 668460-004

Matrix: Soil

MS Sample Id: 668460-004 S

Prep Method: E300P

Date Prep: 07.28.2020

MSD Sample Id: 668460-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	300	200	516	108	518	108	90-110	0	20	mg/kg	07.28.2020 23:17	

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3132887  
MB Sample Id: 7708279-1-BLK

Matrix: Solid

LCS Sample Id: 7708279-1-BKS

Prep Method: SW8015P

Date Prep: 07.28.2020

LCSD Sample Id: 7708279-1-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	966	97	971	97	70-135	1	35	mg/kg	07.28.2020 19:26	
Diesel Range Organics	<50.0	1000	1020	102	1030	103	70-135	1	35	mg/kg	07.28.2020 19:26	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		117		117		70-135	%	07.28.2020 19:26
o-Terphenyl	96		103		104		70-135	%	07.28.2020 19:26

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3132887

Matrix: Solid

MB Sample Id: 7708279-1-BLK

Prep Method: SW8015P

Date Prep: 07.28.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.28.2020 19:06	

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**  
Pickelhaube State CTB

**Analytical Method:** TPH By SW8015 Mod

Seq Number: 3132887

Parent Sample Id: 668435-010

Matrix: Soil

MS Sample Id: 668435-010 S

Prep Method: SW8015P

Date Prep: 07.28.2020

MSD Sample Id: 668435-010 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	923	91	939	93	70-135	2	35	mg/kg	07.28.2020 20:27	
Diesel Range Organics	<50.3	1010	990	98	993	98	70-135	0	35	mg/kg	07.28.2020 20:27	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		112		70-135	%	07.28.2020 20:27
o-Terphenyl	87		88		70-135	%	07.28.2020 20:27

**Analytical Method:** BTEX by EPA 8021B

Seq Number: 3132944

MB Sample Id: 7708274-1-BLK

Matrix: Solid

LCS Sample Id: 7708274-1-BKS

Prep Method: SW5035A

Date Prep: 07.28.2020

LCSD Sample Id: 7708274-1-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	0.105	105	0.102	102	70-130	3	35	mg/kg	07.29.2020 00:13	
Toluene	<0.00200	0.100	0.0969	97	0.0956	96	70-130	1	35	mg/kg	07.29.2020 00:13	
Ethylbenzene	<0.00200	0.100	0.106	106	0.100	100	71-129	6	35	mg/kg	07.29.2020 00:13	
m,p-Xylenes	<0.00400	0.200	0.205	103	0.206	103	70-135	0	35	mg/kg	07.29.2020 00:13	
o-Xylene	<0.00200	0.100	0.102	102	0.102	102	71-133	0	35	mg/kg	07.29.2020 00:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		99		98		70-130	%	07.29.2020 00:13
4-Bromofluorobenzene	103		96		94		70-130	%	07.29.2020 00:13

**Analytical Method:** BTEX by EPA 8021B

Seq Number: 3132944

Parent Sample Id: 668435-003

Matrix: Soil

MS Sample Id: 668435-003 S

Prep Method: SW5035A

Date Prep: 07.28.2020

MSD Sample Id: 668435-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.102	102	0.103	103	70-130	1	35	mg/kg	07.29.2020 00:54	
Toluene	<0.00200	0.100	0.0931	93	0.0947	95	70-130	2	35	mg/kg	07.29.2020 00:54	
Ethylbenzene	<0.00200	0.100	0.0927	93	0.0927	93	71-129	0	35	mg/kg	07.29.2020 00:54	
m,p-Xylenes	<0.00401	0.200	0.183	92	0.184	92	70-135	1	35	mg/kg	07.29.2020 00:54	
o-Xylene	<0.00200	0.100	0.0919	92	0.0913	91	71-133	1	35	mg/kg	07.29.2020 00:54	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		100		70-130	%	07.29.2020 00:54
4-Bromofluorobenzene	98		102		70-130	%	07.29.2020 00:54

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



CONCHHO

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

Analysis Request of Chain of Custody Record

008459

Client Name: COG-Artesia		Site Manager:	
Project Name: Pickelhaube State CTB		Project #:	
Project Location: (county, state) Lea County, NM		Project #:	
Invoice to: Jacqui Harris		Sampler Name: Jacqui Harris	
Receiving Laboratory:		Sampler Name: Jacqui Harris	
Comments:			

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD			# CONTAINERS (C)omposite/(G)rab	ANALYSIS REQUEST (Circle or Specify Method No.)
		YEAR:	DATE	TIME	WATER	SOIL	HCL	HNO <sub>3</sub>		
	S1 @ 6"		7.28.20	10:00	X			X		X TPH 8015M ( GRO - DRO - MRO) X BTEX 8021B X Chloride
	S1 @ 1'		7.28.20	10:05	X			X		X TPH 8015M ( GRO - DRO - MRO) X BTEX 8021B X Chloride
	S2 @ 6"		7.28.20	10:10	X			X		X TPH 8015M ( GRO - DRO - MRO) X BTEX 8021B X Chloride
	S2 @ 1'		7.28.20	10:15	X			X		X TPH 8015M ( GRO - DRO - MRO) X BTEX 8021B X Chloride

Requested by: <i>Jacqui Harris</i>	Date: 7/28/20	Time: 4:19	Received by: <i>[Signature]</i>	Date: 7/28/20	Time: 10:10
Requested by:	Date:	Time:	Received by:	Date:	Time:

Requested by:	Date:	Time:	Received by:	Date:	Time:
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**LAB USE ONLY**

Sample Temperature: 5.4 / 5.2

REMARKS:

RUSH: Same Day 24 hr  
 48 hr  
 72 hr  
 Rush Charges Authorized  
 Special Report Limits or TRRP Report

ORIGINAL COPY

Circle HAND DELIVERED FEDEX UPS Tracking #:

# Eurofins Xenco, LLC

## Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 07.28.2020 04.19.00 PM

Work Order #: 668459

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	5.2
#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: 07.28.2020

Checklist reviewed by:



Jessica Kramer

Date: 07.29.2020



# Certificate of Analysis Summary 670382

## COG Operating LLC, Artesia, NM

**Project Name: Pickelhaube St CTB**

**Project Id:**  
**Contact:** Jacqui Harris  
**Project Location:** Lea County

**Date Received in Lab:** Wed 08.19.2020 10:04  
**Report Date:** 08.20.2020 09:37  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	670382-001	670382-002	670382-004	670382-005		
	<i>Field Id:</i>	T1 @ 1'	T1@2'	T2@1'	T2@2'		
	<i>Depth:</i>	1- ft	2- ft	1- ft	2- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	08.19.2020 08:05	08.19.2020 08:07	08.19.2020 08:16	08.19.2020 08:17		
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	08.19.2020 11:40	08.19.2020 11:40	08.19.2020 11:40	08.19.2020 11:40		
	<i>Analyzed:</i>	08.19.2020 15:37	08.19.2020 16:00	08.19.2020 16:22	08.19.2020 16:44		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
	Benzene	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200		
Toluene	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200			
Ethylbenzene	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200			
m,p-Xylenes	<0.00399 0.00399	<0.00397 0.00397	<0.00403 0.00403	<0.00401 0.00401			
o-Xylene	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200			
Total Xylenes	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200			
Total BTEX	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200			
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	08.19.2020 15:27	08.19.2020 15:27	08.19.2020 15:27	08.19.2020 15:27		
	<i>Analyzed:</i>	08.19.2020 16:49	08.19.2020 17:06	08.19.2020 17:17	08.19.2020 17:22		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
	Chloride	<9.96 9.96	<9.94 9.94	14.0 9.92	<9.98 9.98		
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	08.19.2020 11:15	08.19.2020 11:15	08.19.2020 11:15	08.19.2020 11:15		
	<i>Analyzed:</i>	08.19.2020 11:32	08.19.2020 12:33	08.19.2020 13:36	08.19.2020 13:56		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
	Gasoline Range Hydrocarbons	<50.3 50.3	<49.8 49.8	<49.9 49.9	<49.9 49.9		
Diesel Range Organics	<50.3 50.3	<49.8 49.8	<49.9 49.9	<49.9 49.9			
Motor Oil Range Hydrocarbons (MRO)	<50.3 50.3	<49.8 49.8	<49.9 49.9	<49.9 49.9			
Total TPH	<50.3 50.3	<49.8 49.8	<49.9 49.9	<49.9 49.9			

BRL - Below Reporting Limit

*Jessica Kramer*

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



# Analytical Report 670382

for

**COG Operating LLC**

**Project Manager: Jacqui Harris**

**Pickelhaube St CTB**

**08.20.2020**

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):  
Texas (T104704215-20-37), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)  
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):  
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)  
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)  
Xenco-Carlsbad (LELAP): Louisiana (05092)  
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)  
Xenco-Tampa: Florida (E87429), North Carolina (483)



08.20.2020

Project Manager: **Jacqui Harris**  
**COG Operating LLC**  
2407 Pecos Avenue  
Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **670382**  
**Pickelhaube St CTB**  
Project Address: Lea County

**Jacqui Harris:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 670382. 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. 670382 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,

**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 670382

## COG Operating LLC, Artesia, NM

Pickelhaube St CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1 @1'	S	08.19.2020 08:05	1 ft	670382-001
T1@2'	S	08.19.2020 08:07	2 ft	670382-002
T2@1'	S	08.19.2020 08:16	1 ft	670382-004
T2@2'	S	08.19.2020 08:17	2 ft	670382-005
T1 @3'	S	08.19.2020 08:09	3 ft	Not Analyzed
T2@3'	S	08.19.2020 08:19	3 ft	Not Analyzed



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Pickelhaube St CTB*

Project ID:  
Work Order Number(s): 670382

Report Date: 08.20.2020  
Date Received: 08.19.2020

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**Sample receipt non conformances and comments:**

None

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

None



## Certificate of Analytical Results 670382

### COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: <b>T1 @1'</b>	Matrix: Soil	Date Received: 08.19.2020 10:04
Lab Sample Id: 670382-001	Date Collected: 08.19.2020 08:05	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MAB		% Moisture:
Analyst: MAB	Date Prep: 08.19.2020 15:27	Basis: Wet Weight
Seq Number: 3135044		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	08.19.2020 16:49	U	1

Analytical Method: TPH By SW8015 Mod	Prep Method: SW8015P
Tech: DTH	% Moisture:
Analyst: DTH	Date Prep: 08.19.2020 11:15
Seq Number: 3135008	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	08.19.2020 11:32	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	08.19.2020 11:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	08.19.2020 11:32	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	08.19.2020 11:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	08.19.2020 11:32	
o-Terphenyl	84-15-1	88	%	70-135	08.19.2020 11:32	



## Certificate of Analytical Results 670382

### COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: <b>T1 @1'</b>	Matrix: Soil	Date Received: 08.19.2020 10:04
Lab Sample Id: 670382-001	Date Collected: 08.19.2020 08:05	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5035A
Tech: MAB		% Moisture:
Analyst: MAB	Date Prep: 08.19.2020 11:40	Basis: Wet Weight
Seq Number: 3135042		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.19.2020 15:37	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.19.2020 15:37	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.19.2020 15:37	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.19.2020 15:37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.19.2020 15:37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.19.2020 15:37	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.19.2020 15:37	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	89	%	70-130	08.19.2020 15:37		
1,4-Difluorobenzene	540-36-3	102	%	70-130	08.19.2020 15:37		



# Certificate of Analytical Results 670382

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: T1@2' Matrix: Soil Date Received: 08.19.2020 10:04  
 Lab Sample Id: 670382-002 Date Collected: 08.19.2020 08:07 Sample Depth: 2 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 08.19.2020 15:27 Basis: Wet Weight  
 Seq Number: 3135044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.94	9.94	mg/kg	08.19.2020 17:06	U	1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 08.19.2020 11:15 Basis: Wet Weight  
 Seq Number: 3135008

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	08.19.2020 12:33	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	08.19.2020 12:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	08.19.2020 12:33	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	08.19.2020 12:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	08.19.2020 12:33	
o-Terphenyl	84-15-1	91	%	70-135	08.19.2020 12:33	



## Certificate of Analytical Results 670382

### COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: <b>T1@2'</b>	Matrix: Soil	Date Received: 08.19.2020 10:04
Lab Sample Id: 670382-002	Date Collected: 08.19.2020 08:07	Sample Depth: 2 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5035A
Tech: MAB		% Moisture:
Analyst: MAB	Date Prep: 08.19.2020 11:40	Basis: Wet Weight
Seq Number: 3135042		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.19.2020 16:00	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.19.2020 16:00	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	08.19.2020 16:00	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	08.19.2020 16:00	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.19.2020 16:00	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.19.2020 16:00	U	1
Total BTEX		<0.00198	0.00198	mg/kg	08.19.2020 16:00	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	91	%	70-130	08.19.2020 16:00		
1,4-Difluorobenzene	540-36-3	104	%	70-130	08.19.2020 16:00		



# Certificate of Analytical Results 670382

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: T2@1' Matrix: Soil Date Received: 08.19.2020 10:04  
 Lab Sample Id: 670382-004 Date Collected: 08.19.2020 08:16 Sample Depth: 1 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 08.19.2020 15:27 Basis: Wet Weight  
 Seq Number: 3135044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.0	9.92	mg/kg	08.19.2020 17:17		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 08.19.2020 11:15 Basis: Wet Weight  
 Seq Number: 3135008

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	08.19.2020 13:36	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	08.19.2020 13:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.19.2020 13:36	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	08.19.2020 13:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	08.19.2020 13:36	
o-Terphenyl	84-15-1	88	%	70-135	08.19.2020 13:36	



# Certificate of Analytical Results 670382

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: T2@1' Matrix: Soil Date Received: 08.19.2020 10:04  
 Lab Sample Id: 670382-004 Date Collected: 08.19.2020 08:16 Sample Depth: 1 ft  
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5035A  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 08.19.2020 11:40 Basis: Wet Weight  
 Seq Number: 3135042

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	08.19.2020 16:22	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	08.19.2020 16:22	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	08.19.2020 16:22	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	08.19.2020 16:22	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	08.19.2020 16:22	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	08.19.2020 16:22	U	1
Total BTEX		<0.00202	0.00202	mg/kg	08.19.2020 16:22	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	104	%	70-130	08.19.2020 16:22		
4-Bromofluorobenzene	460-00-4	96	%	70-130	08.19.2020 16:22		



# Certificate of Analytical Results 670382

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: T2@2' Matrix: Soil Date Received: 08.19.2020 10:04  
 Lab Sample Id: 670382-005 Date Collected: 08.19.2020 08:17 Sample Depth: 2 ft  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 08.19.2020 15:27 Basis: Wet Weight  
 Seq Number: 3135044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	08.19.2020 17:22	U	1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 08.19.2020 11:15 Basis: Wet Weight  
 Seq Number: 3135008

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	08.19.2020 13:56	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	08.19.2020 13:56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.19.2020 13:56	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	08.19.2020 13:56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	08.19.2020 13:56	
o-Terphenyl	84-15-1	90	%	70-135	08.19.2020 13:56	



## Certificate of Analytical Results 670382

### COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: <b>T2@2'</b>	Matrix: Soil	Date Received: 08.19.2020 10:04
Lab Sample Id: 670382-005	Date Collected: 08.19.2020 08:17	Sample Depth: 2 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5035A
Tech: MAB		% Moisture:
Analyst: MAB	Date Prep: 08.19.2020 11:40	Basis: Wet Weight
Seq Number: 3135042		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.19.2020 16:44	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.19.2020 16:44	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.19.2020 16:44	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	08.19.2020 16:44	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.19.2020 16:44	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.19.2020 16:44	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.19.2020 16:44	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	93	%	70-130	08.19.2020 16:44		
1,4-Difluorobenzene	540-36-3	103	%	70-130	08.19.2020 16:44		





**COG Operating LLC**  
Pickelhaube St CTB

**Analytical Method: Chloride by EPA 300**

Seq Number: 3135044  
MB Sample Id: 7709777-1-BLK

Matrix: Solid

LCS Sample Id: 7709777-1-BKS

Prep Method: E300P

Date Prep: 08.19.2020

LCSD Sample Id: 7709777-1-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	265	106	268	107	90-110	1	20	mg/kg	08.19.2020 16:38	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3135044  
Parent Sample Id: 670382-001

Matrix: Soil

MS Sample Id: 670382-001 S

Prep Method: E300P

Date Prep: 08.19.2020

MSD Sample Id: 670382-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	208	104	209	105	90-110	0	20	mg/kg	08.19.2020 16:54	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3135044  
Parent Sample Id: 670385-005

Matrix: Soil

MS Sample Id: 670385-005 S

Prep Method: E300P

Date Prep: 08.19.2020

MSD Sample Id: 670385-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.96	199	203	102	203	102	90-110	0	20	mg/kg	08.19.2020 18:12	

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3135008  
MB Sample Id: 7709750-1-BLK

Matrix: Solid

LCS Sample Id: 7709750-1-BKS

Prep Method: SW8015P

Date Prep: 08.19.2020

LCSD Sample Id: 7709750-1-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	908	91	907	91	70-135	0	35	mg/kg	08.19.2020 10:52	
Diesel Range Organics	<50.0	1000	915	92	931	93	70-135	2	35	mg/kg	08.19.2020 10:52	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	96		118		116		70-135	%	08.19.2020 10:52
o-Terphenyl	92		104		103		70-135	%	08.19.2020 10:52

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3135008

Matrix: Solid

MB Sample Id: 7709750-1-BLK

Prep Method: SW8015P

Date Prep: 08.19.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.19.2020 10:32	

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



COG Operating LLC  
Pickelhaube St CTB

Analytical Method: TPH By SW8015 Mod

Seq Number: 3135008

Parent Sample Id: 670382-001

Matrix: Soil

MS Sample Id: 670382-001 S

Prep Method: SW8015P

Date Prep: 08.19.2020

MSD Sample Id: 670382-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<49.9	998	905	91	913	91	70-135	1	35	mg/kg	08.19.2020 11:53	
Diesel Range Organics	<49.9	998	925	93	936	94	70-135	1	35	mg/kg	08.19.2020 11:53	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		108		70-135	%	08.19.2020 11:53
o-Terphenyl	95		96		70-135	%	08.19.2020 11:53

Analytical Method: BTEX by EPA 8021B

Seq Number: 3135042

MB Sample Id: 7709773-1-BLK

Matrix: Solid

LCS Sample Id: 7709773-1-BKS

Prep Method: SW5035A

Date Prep: 08.19.2020

LCSD Sample Id: 7709773-1-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	0.0979	98	0.105	105	70-130	7	35	mg/kg	08.19.2020 13:11	
Toluene	<0.00200	0.100	0.0943	94	0.101	101	70-130	7	35	mg/kg	08.19.2020 13:11	
Ethylbenzene	<0.00200	0.100	0.0878	88	0.0936	94	71-129	6	35	mg/kg	08.19.2020 13:11	
m,p-Xylenes	<0.00400	0.200	0.178	89	0.190	95	70-135	7	35	mg/kg	08.19.2020 13:11	
o-Xylene	<0.00200	0.100	0.0881	88	0.0937	94	71-133	6	35	mg/kg	08.19.2020 13:11	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		99		100		70-130	%	08.19.2020 13:11
4-Bromofluorobenzene	91		90		87		70-130	%	08.19.2020 13:11

Analytical Method: BTEX by EPA 8021B

Seq Number: 3135042

Parent Sample Id: 670382-001

Matrix: Soil

MS Sample Id: 670382-001 S

Prep Method: SW5035A

Date Prep: 08.19.2020

MSD Sample Id: 670382-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0990	0.125	126	0.123	124	70-130	2	35	mg/kg	08.19.2020 13:56	
Toluene	<0.00198	0.0990	0.120	121	0.118	119	70-130	2	35	mg/kg	08.19.2020 13:56	
Ethylbenzene	<0.00198	0.0990	0.111	112	0.109	110	71-129	2	35	mg/kg	08.19.2020 13:56	
m,p-Xylenes	<0.00396	0.198	0.226	114	0.221	112	70-135	2	35	mg/kg	08.19.2020 13:56	
o-Xylene	<0.00198	0.0990	0.111	112	0.107	108	71-133	4	35	mg/kg	08.19.2020 13:56	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		100		70-130	%	08.19.2020 13:56
4-Bromofluorobenzene	88		88		70-130	%	08.19.2020 13:56

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



Chain of Custody

Work Order No: 670302

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334  
 Midland, TX (432) 704-5440 El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296  
 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000 West Palm Beach, FL (561) 689-6701  
 www.xenco.com Page \_\_\_\_\_ of \_\_\_\_\_

Project Manager: Jacqui Harris  
 Company Name: ~~East~~ Concho  
 Address: \_\_\_\_\_  
 City, State ZIP: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

Bill to: (if different)  
 Company Name: Concho - Artesia  
 Address: \_\_\_\_\_  
 City, State ZIP: \_\_\_\_\_

Project Name: Pickethaube St CR3  
 Project Number: \_\_\_\_\_  
 Project Location: 1001 Country  
 Sampler's Name: Jacqui Harris  
 PO #: \_\_\_\_\_  
 Quote #: \_\_\_\_\_  
 Turn Around: \_\_\_\_\_  
 Routine:   
 Rush:  24hr  
 Due Date: \_\_\_\_\_

Program:  UST/PST  PRP  Brownfields  RRC  Superfund   
 State of Project: \_\_\_\_\_  
 Reporting Level:  Level II  Level III  PST/UST  TRRP  Level IV   
 Deliverables:  EDD  ADaPT  Other: \_\_\_\_\_

**SAMPLE RECEIPT**

Temperature (°C): 14.1/1.2  
 Received Intact:  Yes  No  
 Cooler Custody Seals: Yes  No  N/A  
 Sample Custody Seals: Yes  No  N/A  
 Thermometer ID: 7PH003  
 Correction Factor: 0.2  
 Total Containers: 0.6

Temp Blank:  Yes  No  
 Wet Ice:  Yes  No

Lab ID	Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Pres. Code	ANALYSIS REQUEST	Preservative Codes	Sample Comments
TI 01'	5:11	8:14:30	8:05	1'		TPH, BTEX, Chlordes				hold
TI 02'	8:14:30	8:01	2'			BTEX				hold
TI 03'	8:09	3'								
TI 02'	8:09	1'								
TI 03'	8:17	2'								
TI 03'	8:19	3'								

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn  
 TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature) \_\_\_\_\_ Date/Time: 10/04/8:19:30  
 Received by: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_



# Certificate of Analysis Summary 670849

COG Operating LLC, Artesia, NM

Project Name: Pickelhaube St CTB

**Project Id:**  
**Contact:** Jacqui Harris  
**Project Location:** Lea County

**Date Received in Lab:** Tue 08.25.2020 08:55  
**Report Date:** 08.26.2020 13:23  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	670849-001	670849-002				
	<i>Field Id:</i>	SW1	SW2				
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL				
	<i>Sampled:</i>	08.21.2020 09:30	08.21.2020 09:35				
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	08.25.2020 13:44	08.25.2020 13:44				
	<i>Analyzed:</i>	08.25.2020 22:58	08.25.2020 23:20				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Benzene		<0.00200 0.00200	<0.00201 0.00201				
Toluene		<0.00200 0.00200	<0.00201 0.00201				
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201				
m,p-Xylenes		<0.00401 0.00401	<0.00402 0.00402				
o-Xylene		<0.00200 0.00200	<0.00201 0.00201				
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201				
Total BTEX		<0.00200 0.00200	<0.00201 0.00201				
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	08.25.2020 14:46	08.25.2020 14:46				
	<i>Analyzed:</i>	08.25.2020 19:19	08.25.2020 19:43				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Chloride		11.3 9.90	23.9 10.0				
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	08.25.2020 13:00	08.25.2020 13:00				
	<i>Analyzed:</i>	08.25.2020 13:27	08.25.2020 14:28				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons		<49.9 49.9	<50.0 50.0				
Diesel Range Organics		<49.9 49.9	<50.0 50.0				
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0				
Total TPH		<49.9 49.9	<50.0 50.0				

BRL - Below Reporting Limit

*Jessica Kramer*

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



# Analytical Report 670849

for

**COG Operating LLC**

**Project Manager: Jacqui Harris**

**Pickelhaube St CTB**

**08.26.2020**

Collected By: Client

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

Xenco-Houston (EPA Lab Code: TX00122):  
Texas (T104704215-20-37), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)  
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):  
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)  
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)  
Xenco-Carlsbad (LELAP): Louisiana (05092)  
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)  
Xenco-Tampa: Florida (E87429), North Carolina (483)



08.26.2020

Project Manager: **Jacqui Harris**  
**COG Operating LLC**  
2407 Pecos Avenue  
Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **670849**  
**Pickelhaube St CTB**  
Project Address: Lea County

**Jacqui Harris:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 670849. 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. 670849 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,

---

**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 670849

**COG Operating LLC, Artesia, NM**

Pickelhaube St CTB

<b>Sample Id</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Sample Depth</b>	<b>Lab Sample Id</b>
SW1	S	08.21.2020 09:30		670849-001
SW2	S	08.21.2020 09:35		670849-002



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Pickelhaube St CTB*

Project ID:  
Work Order Number(s): 670849

Report Date: 08.26.2020  
Date Received: 08.25.2020

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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 670849

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: **SW1** Matrix: Soil Date Received: 08.25.2020 08:55  
 Lab Sample Id: 670849-001 Date Collected: 08.21.2020 09:30  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 08.25.2020 14:46 Basis: Wet Weight  
 Seq Number: 3135562

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.3	9.90	mg/kg	08.25.2020 19:19		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 08.25.2020 13:00 Basis: Wet Weight  
 Seq Number: 3135540

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	08.25.2020 13:27	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	08.25.2020 13:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.25.2020 13:27	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	08.25.2020 13:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	08.25.2020 13:27	
o-Terphenyl	84-15-1	96	%	70-135	08.25.2020 13:27	



# Certificate of Analytical Results 670849

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: **SW1**  
Lab Sample Id: 670849-001

Matrix: Soil  
Date Collected: 08.21.2020 09:30

Date Received: 08.25.2020 08:55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.25.2020 13:44

Basis: Wet Weight

Seq Number: 3135559

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.25.2020 22:58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.25.2020 22:58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.25.2020 22:58	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	08.25.2020 22:58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.25.2020 22:58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.25.2020 22:58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.25.2020 22:58	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>	
4-Bromofluorobenzene	460-00-4	88	%	70-130	08.25.2020 22:58		
1,4-Difluorobenzene	540-36-3	99	%	70-130	08.25.2020 22:58		



# Certificate of Analytical Results 670849

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: **SW2** Matrix: Soil Date Received: 08.25.2020 08:55  
 Lab Sample Id: 670849-002 Date Collected: 08.21.2020 09:35  
 Analytical Method: Chloride by EPA 300 Prep Method: E300P  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 08.25.2020 14:46 Basis: Wet Weight  
 Seq Number: 3135562

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.9	10.0	mg/kg	08.25.2020 19:43		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P  
 Tech: DTH % Moisture:  
 Analyst: DTH Date Prep: 08.25.2020 13:00 Basis: Wet Weight  
 Seq Number: 3135540

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	08.25.2020 14:28	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	08.25.2020 14:28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	08.25.2020 14:28	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	08.25.2020 14:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	08.25.2020 14:28	
o-Terphenyl	84-15-1	103	%	70-135	08.25.2020 14:28	



# Certificate of Analytical Results 670849

## COG Operating LLC, Artesia, NM Pickelhaube St CTB

Sample Id: **SW2** Matrix: Soil Date Received: 08.25.2020 08:55  
 Lab Sample Id: 670849-002 Date Collected: 08.21.2020 09:35  
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5035A  
 Tech: MAB % Moisture:  
 Analyst: MAB Date Prep: 08.25.2020 13:44 Basis: Wet Weight  
 Seq Number: 3135559

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.25.2020 23:20	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.25.2020 23:20	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.25.2020 23:20	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.25.2020 23:20	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.25.2020 23:20	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.25.2020 23:20	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.25.2020 23:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	91	%	70-130	08.25.2020 23:20	
1,4-Difluorobenzene	540-36-3	102	%	70-130	08.25.2020 23:20	





**COG Operating LLC**  
Pickelhaube St CTB

**Analytical Method: Chloride by EPA 300**

Seq Number: 3135562  
MB Sample Id: 7710133-1-BLK

Matrix: Solid

LCS Sample Id: 7710133-1-BKS

Prep Method: E300P

Date Prep: 08.25.2020

LCSD Sample Id: 7710133-1-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	254	102	254	102	90-110	0	20	mg/kg	08.25.2020 16:11	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3135562  
Parent Sample Id: 670827-001

Matrix: Soil

MS Sample Id: 670827-001 S

Prep Method: E300P

Date Prep: 08.25.2020

MSD Sample Id: 670827-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	77.9	200	283	103	283	103	90-110	0	20	mg/kg	08.25.2020 17:33	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3135562  
Parent Sample Id: 670849-001

Matrix: Soil

MS Sample Id: 670849-001 S

Prep Method: E300P

Date Prep: 08.25.2020

MSD Sample Id: 670849-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11.3	198	214	102	215	103	90-110	0	20	mg/kg	08.25.2020 19:27	

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3135540  
MB Sample Id: 7710152-1-BLK

Matrix: Solid

LCS Sample Id: 7710152-1-BKS

Prep Method: SW8015P

Date Prep: 08.25.2020

LCSD Sample Id: 7710152-1-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	981	98	1010	101	70-135	3	35	mg/kg	08.25.2020 12:47	
Diesel Range Organics	<50.0	1000	1010	101	1050	105	70-135	4	35	mg/kg	08.25.2020 12:47	

**Surrogate**

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	91		117		120		70-135	%	08.25.2020 12:47
o-Terphenyl	88		102		105		70-135	%	08.25.2020 12:47

**Analytical Method: TPH By SW8015 Mod**

Seq Number: 3135540

Matrix: Solid

MB Sample Id: 7710152-1-BLK

Prep Method: SW8015P

Date Prep: 08.25.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.25.2020 12:27	

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

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

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

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



**COG Operating LLC**  
Pickelhaube St CTB

**Analytical Method:** TPH By SW8015 Mod

Seq Number: 3135540  
Parent Sample Id: 670849-001

Matrix: Soil  
MS Sample Id: 670849-001 S

Prep Method: SW8015P  
Date Prep: 08.25.2020  
MSD Sample Id: 670849-001 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	<50.0	1000	849	85	852	85	70-135	0	35	mg/kg	08.25.2020 13:48	
Diesel Range Organics	<50.0	1000	908	91	911	91	70-135	0	35	mg/kg	08.25.2020 13:48	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		116		70-135	%	08.25.2020 13:48
o-Terphenyl	105		104		70-135	%	08.25.2020 13:48

**Analytical Method:** BTEX by EPA 8021B

Seq Number: 3135559  
MB Sample Id: 7710126-1-BLK

Matrix: Solid  
LCS Sample Id: 7710126-1-BKS

Prep Method: SW5035A  
Date Prep: 08.25.2020  
LCSD Sample Id: 7710126-1-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	0.109	109	0.103	103	70-130	6	35	mg/kg	08.25.2020 15:09	
Toluene	<0.00200	0.100	0.104	104	0.0973	97	70-130	7	35	mg/kg	08.25.2020 15:09	
Ethylbenzene	<0.00200	0.100	0.0952	95	0.0873	87	71-129	9	35	mg/kg	08.25.2020 15:09	
m,p-Xylenes	<0.00400	0.200	0.190	95	0.173	87	70-135	9	35	mg/kg	08.25.2020 15:09	
o-Xylene	<0.00200	0.100	0.0947	95	0.0886	89	71-133	7	35	mg/kg	08.25.2020 15:09	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		100		70-130	%	08.25.2020 15:09
4-Bromofluorobenzene	86		84		90		70-130	%	08.25.2020 15:09

**Analytical Method:** BTEX by EPA 8021B

Seq Number: 3135559  
Parent Sample Id: 670827-001

Matrix: Soil  
MS Sample Id: 670827-001 S

Prep Method: SW5035A  
Date Prep: 08.25.2020  
MSD Sample Id: 670827-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.127	126	0.117	117	70-130	8	35	mg/kg	08.25.2020 15:54	
Toluene	<0.00201	0.101	0.119	118	0.109	109	70-130	9	35	mg/kg	08.25.2020 15:54	
Ethylbenzene	<0.00201	0.101	0.108	107	0.0989	99	71-129	9	35	mg/kg	08.25.2020 15:54	
m,p-Xylenes	<0.00402	0.201	0.217	108	0.198	99	70-135	9	35	mg/kg	08.25.2020 15:54	
o-Xylene	<0.00201	0.101	0.107	106	0.0977	98	71-133	9	35	mg/kg	08.25.2020 15:54	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		100		70-130	%	08.25.2020 15:54
4-Bromofluorobenzene	87		91		70-130	%	08.25.2020 15:54

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



Chain of Custody

Work Order No: 1670849

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334  
 Midland, TX (432) 704-5440 El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296 Crisabad, NM (432) 704-5440  
 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8900 Tampa, FL (813) 620-2000 West Palm Beach, FL (561) 689-6701

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Project Manager:	Jacqui Harris	Bill to: (if different)	
Company Name:	CDG	Company Name:	
Address:	Carlsbad,	Address:	
City, State ZIP:		City, State ZIP:	
Phone:		Email:	jharris@conoco.com
Project Name:	Pickelhaube ST CTB	Turn Around	<input type="checkbox"/> Routine <input type="checkbox"/> Rush
Project Number:		Project Location	Lea County
Project Location		Sampler's Name:	Jacqui Harris
Sampler's Name:		Quote #:	
PO #:			

<b>SAMPLE RECEIPT</b>		Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Temperature (°C):	10.8 / 10.6	Thermometer ID			
Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:	T-NUM-007		
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Total Containers:	-0.2		
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A				

Lab ID	Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Pres. Code	ANALYSIS REQUEST	Preservative Codes
SW01		soil	8-21-20	9:30		1	TPH		MeOH: Me None: NO HNO3: HN H2SO4: H2 HCL: HL NaOH: Na Zn Acetate+ NaOH: Zn
SW02		soil	8-21-20	9:35		1	BTEX		TAT starts the day received by the lab, if received by 4:00pm
							Chkridex		

Total 200.7 / 6010      200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn  
 TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Jacqui Harris	Cheiffon	8:25:20	Jacqui Harris		3:55

# Eurofins Xenco, LLC

## Prelogin/Nonconformance Report- Sample Log-In

**Client:** COG Operating LLC

**Date/ Time Received:** 08.25.2020 08.55.00 AM

**Work Order #:** 670849

**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)?	10.6	
#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	Samples received in bulk containers.
#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:** Cloe Clifton Date: 08.25.2020

**Checklist reviewed by:** Jessica Kramer Date: 08.25.2020