



July 29, 2020

Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM 88240

Ryan Mann
New Mexico State Land Office
1001 S. Atkinson
Roswell, NM 88230

Closure Report:

Pygmy 27 State #001H
API#: 30-025-40352
RP#: 1RP-5514
Incident#: NAB1915035343
DOR: April 24, 2019
GPS: 32.4450 -103.5723
Unit Letter P, Section 28, Township 21 South, Range 33 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 Pygmy 27 State #001H. The release was located in Unit Letter P, Section 28, Township 21 South and Range 33 East in Lea County, New Mexico. More specifically the latitude and longitude for the release are 32.4450 North and -103.5723 West.

BACKGROUND

The release was discovered on April 24, 2019. A C-141 report was submitted to the New Mexico Oil Conservation Division (NMOCD) and the New Mexico State Land Office (NMSLO). The C-141 is presented in Appendix A. The release was caused by ruptured flowline. The release consisted of approximately one-hundred and twenty-five (125) barrels (bbls) of produced water. Vacuum trucks were utilized to recover approximately one-hundred and twenty (120) bbls of fluid.

The release impacted the lease road and the adjacent pasture. Due to traffic and safety concerns initially only the pasture was remediated and a deferral report was submitted. NMOCD denied deferral and required that remediation of the impacted lease road proceed. The impacted area on the lease road has been successfully remediated.

GROUNDWATER AND REGULATORY FRAMEWORK

According to the United States Geological Survey (USGS) the nearest water well with measurement data (322702103344002) indicates that groundwater in the project vicinity is approximately one-hundred and seventy-eight (178) 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, no other receptors (water wells, playas, karst, 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 are summarized in Appendix B. The delineation and closure criteria are listed below:

GENERAL SITE CHARACTERIZATION AND GROUNDWATER:

Site Characterization	Average Groundwater Depth (ft.)
None Located	178 feet

DELINEATION AND CLOSURE CRITERIA:

Table I Closure Criteria	
Chlorides	20,000 mg/kg
TPH (GRO and DRO and MRO)	2,500 mg/kg
TPH (GRO and DRO)	1,000 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

Remedial Actions

- The impacted area was excavated to depths ranging from two (2) feet BGS to five (5) feet BGS.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Confirmation soil samples were taken from the bottom and sidewalls of the excavated areas per NMED 19.15.29.13.
- Upon receipt of acceptable analytical results from the confirmation soil sampling activities the excavation was backfilled with clean “like” material.

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. 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 surface lease holders preferred seed mixture.

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the New Mexico State Land Office grant closure approval for the Pygmy 27 State #001H incident that occurred on April 24, 2019.

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

Sincerely,



Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

FIGURES

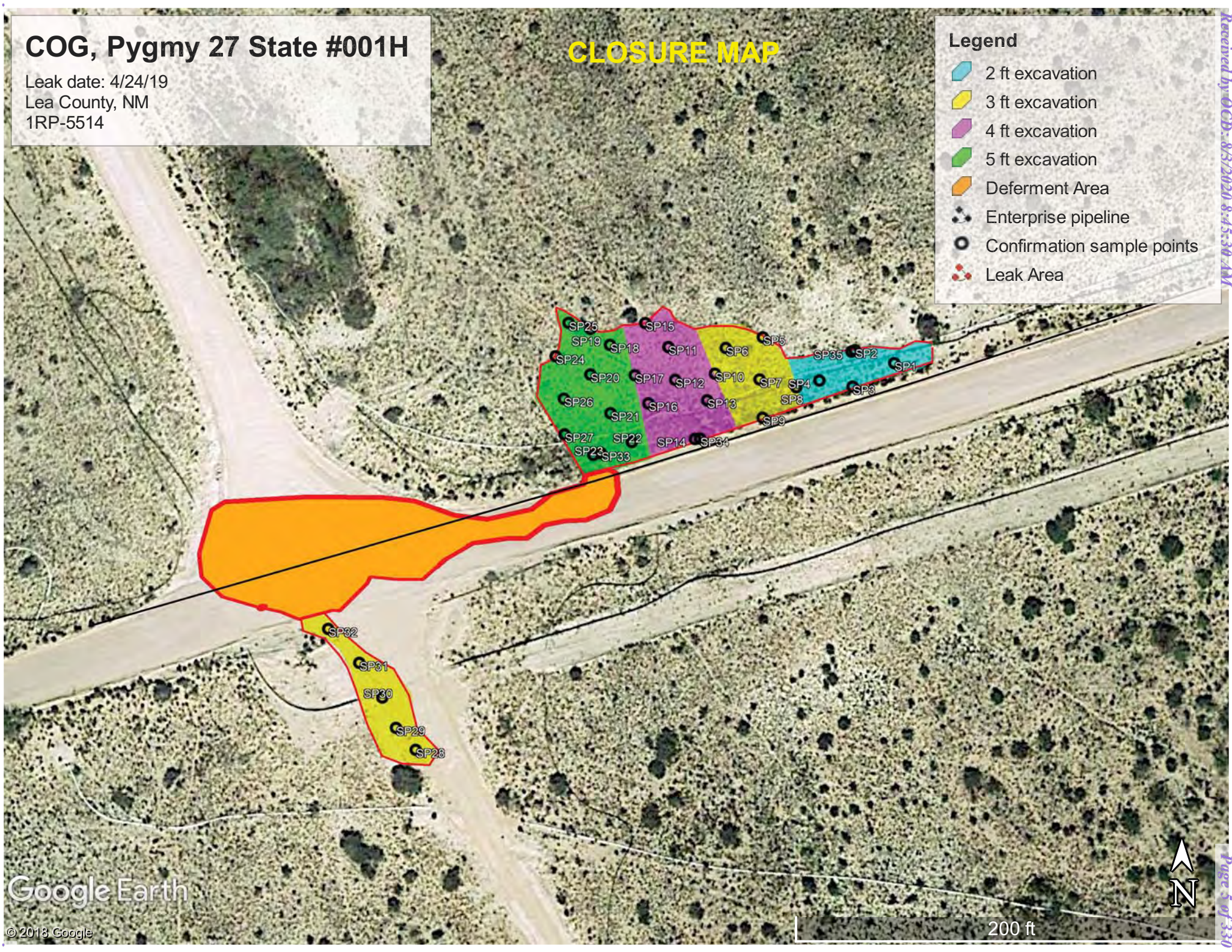
COG, Pygmy 27 State #001H

Leak date: 4/24/19
Lea County, NM
1RP-5514

CLOSURE MAP

Legend

- 2 ft excavation
- 3 ft excavation
- 4 ft excavation
- 5 ft excavation
- Deferment Area
- Enterprise pipeline
- Confirmation sample points
- Leak Area



Google Earth

© 2018 Google

200 ft

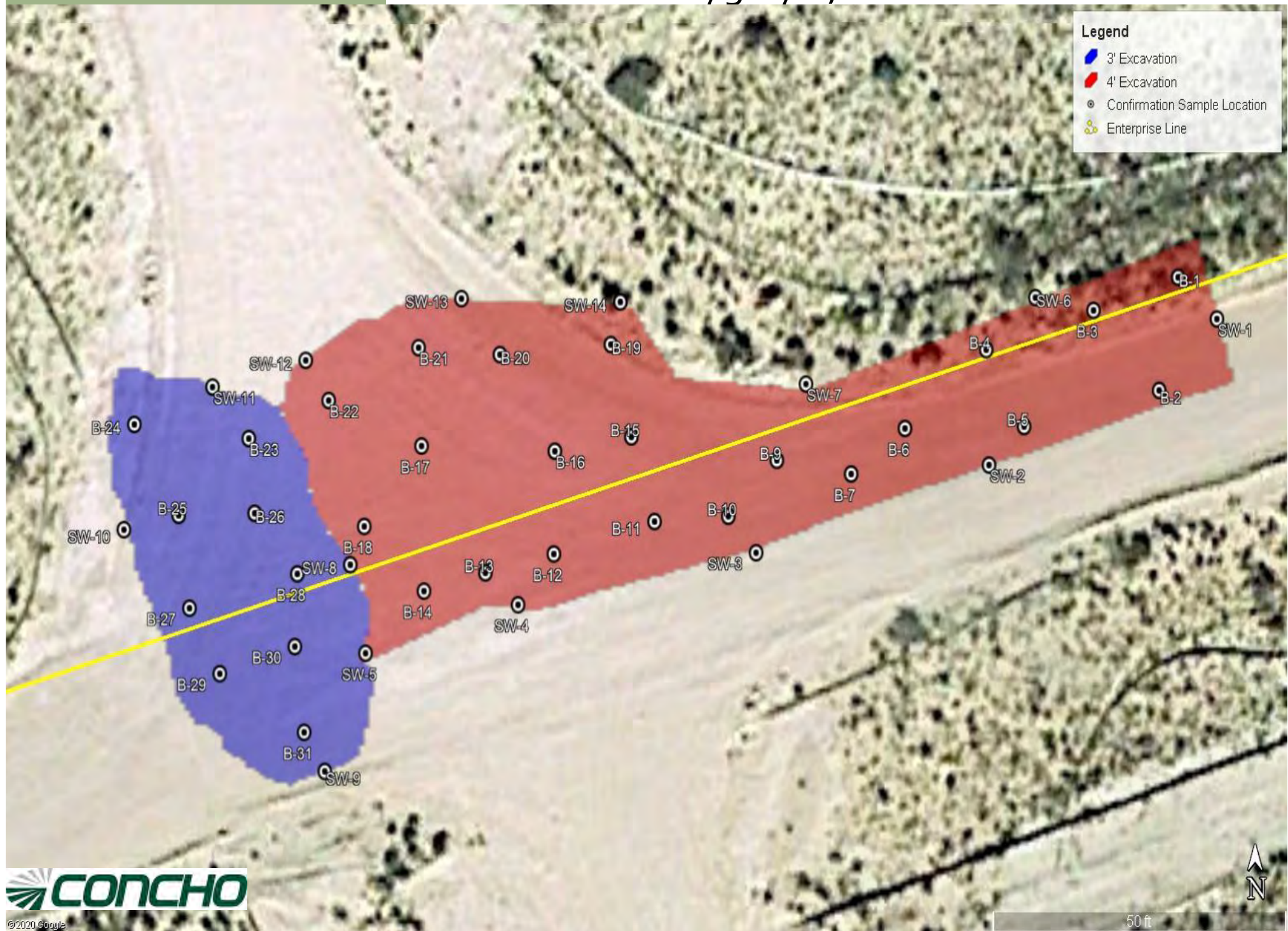


Received by OCB: 8/3/2020 8:45:30 AM

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April 24, 2019

Pygmy 27 St. #001



TABLES

Table 1
COG Operating LLC.
Pygmy 27 State #001H
Lea 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			
B-1	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	371
B-2	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	380
B-3	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	381
B-4	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	204
B-5	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	186
B-6	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	234
B-7	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	223
B-8	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	200
B-9	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	231
B-10	4	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	246
B-11	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	197
B-12	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	183
B-13	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	178
B-14	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	191
B-15	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	106
B-16	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	108
B-17	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	111
B-18	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	105
B-19	4	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	105
B-20	4	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	205
B-21	4	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	206
B-22	4	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	208
B-23	3	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	208
B-24	3	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	573
B-25	3	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	417
B-26	3	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	215
B-27	3	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	238
B-28	3	6/11/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	296
B-29	3	6/11/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	208
B-30	3	6/11/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	272
B-31	3	6/11/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	221
SW-1	SIDEWALL	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	<10.0
SW-2	SIDEWALL	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	153
SW-3	SIDEWALL	6/3/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	448
SW-4	SIDEWALL	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	134
SW-5	SIDEWALL	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	110
SW-6	SIDEWALL	6/4/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	106
SW-7	SIDEWALL	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	88
SW-8	SIDEWALL	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	107
SW-9	SIDEWALL	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	67
SW-10	SIDEWALL	6/8/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	88
SW-11	SIDEWALL	6/11/2020		X	<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	776
SW-11	SIDEWALL	6/15/2020	X		#	#	#	#	#	#	#	#	#	163

Table 1
COG Operating LLC.
Pygmy 27 State #001H
Lea 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
SW-12	SIDEWALL	6/11/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	190
SW-13	SIDEWALL	6/11/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	54
SW-14	SIDEWALL	6/11/2020	X		<50.0	<50.0	<50.0	0.0	<50.0	<50.0	0.0	<0.002	<0.002	354

(#) 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: _____
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<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 not 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.

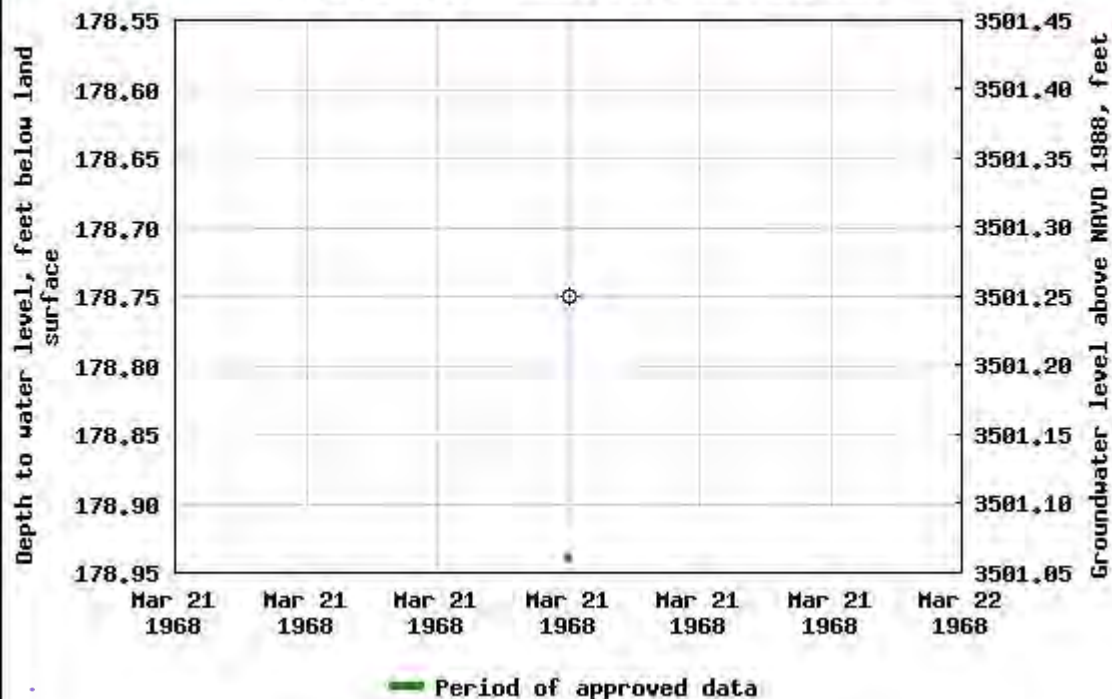
Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

APPENDIX B



USGS 322702103344002 21S.33E.28.12443A



APPENDIX C



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

May 31, 2019

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: PYGMY 27 STATE COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 05/24/19 14:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/16/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 1 @ SURFACE (H901867-01)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.98	98.8	2.00	4.49	
Toluene*	<0.050	0.050	05/30/2019	ND	2.14	107	2.00	4.44	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	2.00	100	2.00	3.13	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	6.10	102	6.00	3.57	
Total BTEX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	31600	16.0	05/31/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<50.0	50.0	05/25/2019	ND	172	86.1	200	9.91		
DRO >C10-C28*	10500	50.0	05/25/2019	ND	202	101	200	7.41		
EXT DRO >C28-C36	2820	50.0	05/25/2019	ND						

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 577 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/16/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 1 @ 1' (H901867-02)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	14400	16.0	05/31/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	17.2	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 97.6 % 41-142

Surrogate: 1-Chlorooctadecane 99.2 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/16/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 1 @ 2' (H901867-03)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7200	16.0	05/31/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 95.3 % 41-142

Surrogate: 1-Chlorooctadecane 100 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
 P.O. Box 805
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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/16/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 1 @ 3' (H901867-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3160	16.0	05/31/2019	ND	400	100	400	0.00	QM-07	

Sample ID: SP 1 @ 4' (H901867-05)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4080	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 1 @ 5' (H901867-06)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2440	16.0	05/31/2019	ND	400	100	400	0.00		

Sample ID: SP 1 @ 6' (H901867-07)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 1 @ 7' (H901867-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	05/31/2019	ND	400	100	400	0.00	

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Analytical Results For:

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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 2 @ SURFACE (H901867-09)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/30/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/30/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/30/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/30/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	50800	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<50.0	50.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	5940	50.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	2330	50.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 93.4 % 41-142

Surrogate: 1-Chlorooctadecane 468 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 2 @ 1' (H901867-10)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	10400	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 99.4 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 2 @ 2' (H901867-11)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	10000	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 92.5 % 41-142

Surrogate: 1-Chlorooctadecane 91.6 % 37.6-147

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 Cliff Brunson
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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 2 @ 3' (H901867-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4000	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 2 @ 4' (H901867-13)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3200	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 2 @ 5' (H901867-14)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	496	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 2 @ 6' (H901867-15)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	05/31/2019	ND	400	100	400	0.00	

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 3 @ SURFACE (H901867-16)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	41600	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<50.0	50.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	11800	50.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	3480	50.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 95.1 % 41-142

Surrogate: 1-Chlorooctadecane 636 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 3 @ 1' (H901867-17)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	12000	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 92.1 % 41-142

Surrogate: 1-Chlorooctadecane 92.8 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 3 @ 2' (H901867-18)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	11400	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 96.0 % 41-142

Surrogate: 1-Chlorooctadecane 96.1 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 3 @ 3' (H901867-19)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3840	16.0	05/31/2019	ND	400	100	400	0.00		

Sample ID: SP 3 @ 4' (H901867-20)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1980	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 3 @ 5' (H901867-21)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	05/31/2019	ND	400	100	400	0.00		

Sample ID: SP 3 @ 6' (H901867-22)

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	05/31/2019	ND	400	100	400	0.00	

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Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 4 @ SURFACE (H901867-23)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	46000	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<50.0	50.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	7300	50.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	2350	50.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 469 % 37.6-147

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Analytical Results For:

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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 4 @ 1' (H901867-24)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	9200	16.0	05/31/2019	ND	400	100	400	0.00	QM-07	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 99.1 % 41-142

Surrogate: 1-Chlorooctadecane 99.1 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 4 @ 2' (H901867-25)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	10000	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 95.6 % 41-142

Surrogate: 1-Chlorooctadecane 95.8 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 4 @ 3' (H901867-26)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3240	16.0	05/31/2019	ND	400	100	400	0.00		

Sample ID: SP 4 @ 4' (H901867-27)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 4 @ 5' (H901867-28)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	05/31/2019	ND	400	100	400	0.00	

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 5 @ SURFACE (H901867-29)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTEX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	60000	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<50.0	50.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	9260	50.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	3550	50.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 97.8 % 41-142

Surrogate: 1-Chlorooctadecane 626 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/17/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 5 @ 1' (H901867-30)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/29/2019	ND	1.98	98.8	2.00	4.49		
Toluene*	<0.050	0.050	05/29/2019	ND	2.14	107	2.00	4.44		
Ethylbenzene*	<0.050	0.050	05/29/2019	ND	2.00	100	2.00	3.13		
Total Xylenes*	<0.150	0.150	05/29/2019	ND	6.10	102	6.00	3.57		
Total BTX	<0.300	0.300	05/29/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	11300	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	77.8	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 5 @ 2' (H901867-31)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	QR-03	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178		
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213		
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278		
Total BTX	<0.300	0.300	05/30/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	400	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 92.5 % 41-142

Surrogate: 1-Chlorooctadecane 91.5 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 5 @ 3' (H901867-32)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 5 @ 4' (H901867-33)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	05/31/2019	ND	400	100	400	0.00	

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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 6 @ SURFACE (H901867-34)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTEX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	55200	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/28/2019	ND	172	86.1	200	9.91	
DRO >C10-C28*	2830	10.0	05/28/2019	ND	202	101	200	7.41	
EXT DRO >C28-C36	1220	10.0	05/28/2019	ND					

Surrogate: 1-Chlorooctane 94.5 % 41-142

Surrogate: 1-Chlorooctadecane 260 % 37.6-147

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Analytical Results For:

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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 6 @ 1' (H901867-35)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	40800	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	824	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	337	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 95.9 % 41-142

Surrogate: 1-Chlorooctadecane 145 % 37.6-147

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Analytical Results For:

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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 6 @ 2' (H901867-36)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 91.7 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 6 @ 3' (H901867-37)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	05/31/2019	ND	400	100	400	0.00	

Sample ID: SP 6 @ 4' (H901867-38)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	05/31/2019	ND	400	100	400	0.00	

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Analytical Results For:

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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 7 @ SURFACE (H901867-39)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.7 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9730	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 88.0 % 41-142

Surrogate: 1-Chlorooctadecane 88.1 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 7 @ 1' (H901867-40)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTEx	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.1 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2400	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 91.1 % 41-142

Surrogate: 1-Chlorooctadecane 92.2 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 7 @ 2' (H901867-41)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTEx	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	560	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/25/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/25/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/25/2019	ND					

Surrogate: 1-Chlorooctane 91.8 % 41-142

Surrogate: 1-Chlorooctadecane 93.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 7 @ 3' (H901867-42)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	05/31/2019	ND	400	100	400	0.00		

Sample ID: SP 7 @ 4' (H901867-43)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	05/31/2019	ND	400	100	400	0.00		

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Analytical Results For:

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 Cliff Brunson
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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 8 @ SURFACE (H901867-44)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTEx	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	8660	16.0	05/31/2019	ND	400	100	400	0.00	QM-07	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 96.5 % 41-142

Surrogate: 1-Chlorooctadecane 99.8 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 8 @ 1' (H901867-45)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2560	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/28/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/28/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/28/2019	ND					

Surrogate: 1-Chlorooctane 37.4 % 41-142

Surrogate: 1-Chlorooctadecane 40.5 % 37.6-147

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Analytical Results For:

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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 8 @ 2' (H901867-46)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTEX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.0 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 87.5 % 41-142

Surrogate: 1-Chlorooctadecane 87.8 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/20/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 8 @ 3' (H901867-47)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	05/31/2019	ND	400	100	400	0.00		

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Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 9 @ SURFACE (H901867-48)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9330	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 89.3 % 41-142

Surrogate: 1-Chlorooctadecane 90.7 % 37.6-147

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Analytical Results For:

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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 9 @ 1' (H901867-49)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.5 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8660	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 91.0 % 41-142

Surrogate: 1-Chlorooctadecane 91.9 % 37.6-147

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Analytical Results For:

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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 9 @ 2' (H901867-50)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 94.8 % 41-142

Surrogate: 1-Chlorooctadecane 96.0 % 37.6-147

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Analytical Results For:

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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 9 @ 3' (H901867-51)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	05/31/2019	ND	400	100	400	0.00		

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Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 10 @ SURFACE (H901867-52)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTEx	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	50400	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	1650	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	668	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 89.9 % 41-142

Surrogate: 1-Chlorooctadecane 187 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 10 @ 1' (H901867-53)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184		
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178		
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213		
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278		
Total BTX	<0.300	0.300	05/30/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1780	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 84.6 % 41-142

Surrogate: 1-Chlorooctadecane 86.0 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SP 10 @ 2' (H901867-54)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	656	16.0	05/31/2019	ND	400	100	400	0.00		

Sample ID: SP 10 @ 3' (H901867-55)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	05/31/2019	ND	400	100	400	0.00		

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 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: NORTH @ SURFACE (H901867-56)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184	
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178	
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213	
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278	
Total BTX	<0.300	0.300	05/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	05/31/2019	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 90.1 % 41-142

Surrogate: 1-Chlorooctadecane 88.1 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: EAST @ SURFACE (H901867-57)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/30/2019	ND	1.84	92.1	2.00	0.0184		
Toluene*	<0.050	0.050	05/30/2019	ND	1.99	99.4	2.00	0.178		
Ethylbenzene*	<0.050	0.050	05/30/2019	ND	1.89	94.5	2.00	0.213		
Total Xylenes*	<0.150	0.150	05/30/2019	ND	5.72	95.3	6.00	0.0278		
Total BTEx	<0.300	0.300	05/30/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 93.5 % 41-142

Surrogate: 1-Chlorooctadecane 96.1 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: WEST @ SURFACE (H901867-58)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/31/2019	ND	1.87	93.4	2.00	1.31	
Toluene*	<0.050	0.050	05/31/2019	ND	1.99	99.3	2.00	0.659	
Ethylbenzene*	<0.050	0.050	05/31/2019	ND	1.90	94.9	2.00	0.274	
Total Xylenes*	<0.150	0.150	05/31/2019	ND	5.77	96.1	6.00	0.640	
Total BTX	<0.300	0.300	05/31/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 70.6 % 41-142

Surrogate: 1-Chlorooctadecane 72.1 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	05/24/2019	Sampling Date:	05/21/2019
Reported:	05/31/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 STATE COM #1H	Sampling Condition:	Cool & Intact
Project Number:	(4/24/19)	Sample Received By:	Tamara Oldaker
Project Location:	COG- LEA CO NM		

Sample ID: SOUTH @ SURFACE (H901867-59)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/31/2019	ND	1.87	93.4	2.00	1.31		
Toluene*	<0.050	0.050	05/31/2019	ND	1.99	99.3	2.00	0.659		
Ethylbenzene*	<0.050	0.050	05/31/2019	ND	1.90	94.9	2.00	0.274		
Total Xylenes*	<0.150	0.150	05/31/2019	ND	5.77	96.1	6.00	0.640		
Total BTX	<0.300	0.300	05/31/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	05/31/2019	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/26/2019	ND	181	90.5	200	7.25	
DRO >C10-C28*	<10.0	10.0	05/26/2019	ND	190	95.0	200	1.96	
EXT DRO >C28-C36	<10.0	10.0	05/26/2019	ND					

Surrogate: 1-Chlorooctane 71.5 % 41-142

Surrogate: 1-Chlorooctadecane 73.6 % 37.6-147

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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST																	
Project Manager: Cliff Brunson				P.O. #:																					
Address: P.O. Box 805				Company: <i>COG</i>																					
City: Hobbs State: NM Zip: 88241				Attn: <i>Haskell</i>																					
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																					
Project #: Project Owner: <i>COG</i>				City:																					
Project Name: PYGMY 27 STATE COM #1H (4/24/19)				State: Zip:																					
Project Location: LEA COUNTY, NM				Phone #:																					
Sampler Name: JEFF ORNELAS				Fax #:																					
FOR LAB USE ONLY																									
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.		SAMPLING		CI	BTX	TPH/EXT											
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL												OTHER:	DATE	TIME
<i>H901867</i>																									
<i>11</i>	SP2 @ 2'	<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>													5/17/19	10:52 AM
<i>12</i>	SP2 @ 3'																							5/17/19	11:09 AM
<i>13</i>	SP2 @ 4'																							5/17/19	11:19 AM
<i>14</i>	SP2 @ 5'																							5/17/19	11:33 AM
<i>15</i>	SP2 @ 6'																							5/17/19	11:51 AM
<i>16</i>	SP3 @ SURFACE																							5/17/19	11:55 AM
<i>17</i>	SP3 @ 1'																							5/17/19	12:01 PM
<i>18</i>	SP3 @ 2'												5/17/19	12:12 PM											
<i>19</i>	SP3 @ 3'												5/17/19	12:55 PM											
<i>20</i>	SP3 @ 4'												5/17/19	1:11 PM											

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Relinquished By:	Date: <i>5/20/19</i>	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
<i>Jeff Ornelas</i>	Time: <i>5:30pm</i>	<i>Grant Pena</i>	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date: <i>5-24-19</i>	Received By:	REMARKS:	
<i>Grant Pena</i>	Time: <i>2:15pm</i>	<i>James P. [Signature]</i>		
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact	(Initials)		
<i>5.1c #97</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>T.O.</i>		

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

5

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST																			
Project Manager: Cliff Brunson				P.O. #:																							
Address: P.O. Box 805				Company: <i>COG</i>																							
City: Hobbs State: NM Zip: 88241				Attn: <i>Haskell</i>																							
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																							
Project #: Project Owner: <i>COG</i>				City:																							
Project Name: PYGMY 27 STATE COM #1H (4/24/19)				State: Zip:																							
Project Location: LEA COUNTY, NM				Phone #:																							
Sampler Name: JEFF ORNELAS				Fax #:																							
FOR LAB USE ONLY				MATRIX		PRESERV.		SAMPLING																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	<i>CI</i>	<i>BTEX</i>	<i>TPHEXT</i>										
<i>H901867</i>																											
<i>41</i>	SP7 @ 2'	<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		5/20/19	11:30 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>42</i>	SP7 @ 3'												5/20/19	11:49 AM	<input checked="" type="checkbox"/>												
<i>43</i>	SP7 @ 4'												5/20/19	12:15 PM	<input checked="" type="checkbox"/>												
<i>44</i>	SP8 @ SURFACE												5/20/19	12:19 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>45</i>	SP8 @ 1'												5/20/19	12:33 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>46</i>	SP8 @ 2'												5/20/19	12:49 PM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>47</i>	SP8 @ 3'												5/20/19	1:11 PM	<input checked="" type="checkbox"/>												
<i>48</i>	SP9 @ SURFACE												5/21/19	8:49 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>49</i>	SP9 @ 1'												5/21/19	9:11 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<i>50</i>	SP9 @ 2'												5/21/19	9:29 AM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										

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Relinquished By: <i>Jeff Ornelas</i>	Date: <i>5/21/19</i>	Received By: <i>Isaac Pena</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <i>5:30pm</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: <i>Isaac Pena</i>	Date: <i>5-24-19</i>	Received By: <i>Jamara Aldrete</i>	REMARKS:	
	Time: <i>2:15pm</i>			
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact	(Initials)		
<i>5.1i H97</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>T.O.</i>		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

6

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST											
Project Manager: Cliff Brunson				P.O. #:															
Address: P.O. Box 805				Company: <i>COG</i>															
City: Hobbs State: NM Zip: 88241				Attn: <i>Haskell</i>															
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:															
Project #: Project Owner: <i>COG</i>				City:															
Project Name: PYGMY 27 STATE COM #1H (4/24/19)				State: Zip:															
Project Location: LEA COUNTY, NM				Phone #:															
Sampler Name: JEFF ORNELAS				Fax #:															
FOR LAB USE ONLY																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX			PRESERV.		SAMPLING		<i>CI</i> <i>BTX</i> <i>TPH/EXT</i>								
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:						ICE / COOL	OTHER :	DATE	TIME
<i>H901867</i>		<i>G</i>	<i>1</i>			<input checked="" type="checkbox"/>										<input checked="" type="checkbox"/>		5/21/19	9:55 AM
<i>51</i>	SP9 @ 3'																	5/21/19	10:15 AM
<i>52</i>	SP10 @ SURFACE																	5/21/19	10:29 AM
<i>53</i>	SP10 @ 1'																	5/21/19	10:44 AM
<i>54</i>	SP10 @ 2'																	5/21/19	10:59 AM
<i>55</i>	SP10 @ 3'																	5/21/19	11:11 AM
<i>56</i>	NORTH @ SURFACE																	5/21/19	11:20 AM
<i>57</i>	EAST @ SURFACE																	5/21/19	11:30 AM
<i>58</i>	WEST @ SURFACE												5/21/19	11:40 AM					
<i>59</i>	SOUTH @ SURFACE																		

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Relinquished By:	Date: <i>5/21/19</i>	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
<i>Jeff Ornelas</i>	Time: <i>3:30</i>	<i>Israel Kena</i>	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date: <i>5-24-19</i>	Received By:	REMARKS:	
<i>Israel Kena</i>	Time: <i>2:15 PM</i>	<i>Jamara D. D. Kena</i>		
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact	(Initials)		
<i>5.1c #97</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>7.0</i>		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 30, 2019

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: PYGMY 27 - 1H

Enclosed are the results of analyses for samples received by the laboratory on 07/29/19 11:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/29/2019
 Reported: 07/30/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/21/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 (H902579-01)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	2.00	100	2.00	3.10	
Toluene*	<0.050	0.050	07/29/2019	ND	2.06	103	2.00	2.40	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.99	99.5	2.00	3.85	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.02	100	6.00	3.56	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/29/2019	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 97.1 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/29/2019
 Reported: 07/30/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/21/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 3 (H902579-02)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	2.00	100	2.00	3.10	
Toluene*	<0.050	0.050	07/29/2019	ND	2.06	103	2.00	2.40	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.99	99.5	2.00	3.85	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.02	100	6.00	3.56	
Total BTX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	07/29/2019	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 86.0 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/29/2019
 Reported: 07/30/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/21/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 4 (H902579-03)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	2.00	100	2.00	3.10	
Toluene*	<0.050	0.050	07/29/2019	ND	2.06	103	2.00	2.40	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.99	99.5	2.00	3.85	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.02	100	6.00	3.56	
Total BTEx	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/29/2019	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 93.8 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/29/2019
 Reported: 07/30/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/21/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 29 (H902579-04)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	2.00	100	2.00	3.10	
Toluene*	<0.050	0.050	07/29/2019	ND	2.06	103	2.00	2.40	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.99	99.5	2.00	3.85	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.02	100	6.00	3.56	
Total BTX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/29/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 91.4 % 41-142

Surrogate: 1-Chlorooctadecane 98.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a light blue horizontal line.

Celey D. Keene, Lab Director/Quality Manager

**• CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST																	
Project Manager: Cliff Brunson				P.O. #:				<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; margin-right: 10px;">TPH EX-10-1</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em;">BTEX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em;">C1-</div> </div>																	
Address: P.O. Box 805				Company:																					
City: Hobbs State: NM Zip: 88241				Attn:																					
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																					
Project #: Project Owner: COG				City:																					
Project Name: Pygmy 27-1H 4-29-19				State: Zip:																					
Project Location: 176				Phone #:																					
Sampler Name: ✓				Fax #:																					
FOR LAB USE ONLY				MATRIX				PRESERV.		SAMPLING															
Lab I.D.	Sample I.D.	(GIRAB OR C) COMP # CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER	DATE	TIME												
H962579	SP 1	C 1			X				X			7-21	11												
2	SP 3	C 1			X				X			↓	133												
3	SP 4	C 1			X				X			↓	158												
4	SP 29	C 1			X				X			↓	222												

PLEASE NOTE: Liability and Damages: Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:		Date: 7-21-1	Received By: L. G. C.	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Time: 8:100				Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: L. G. C.		Date: 7-29-19	Received By: Janara Elak	REMARKS: R 5H !!!	
Time: 11:25					
Delivered By: (Circle One) -13.6° #97		Sample Condition	CHECKED BY: (Initials)		
Sampler - UPS - Bus - Other: Corrected -13.2°		Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/>			
		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 24, 2019

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: PYGMY 27 - 1H

Enclosed are the results of analyses for samples received by the laboratory on 07/23/19 16:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 2 (H902538-01)

BTEX 8260B		mg/kg	Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26	
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44	
Total BTEX	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 94.4 % 90.4-111

Surrogate: Toluene-d8 106 % 85.3-114

Surrogate: 4-Bromofluorobenzene 92.0 % 80.1-121

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10800	16.0	07/24/2019	ND	432	108	400	3.77	

TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	17.6	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	10.8	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 74.7 % 41-142

Surrogate: 1-Chlorooctadecane 80.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 5 (H902538-02)

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTEx	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 94.0 % 90.4-111
 Surrogate: Toluene-d8 105 % 85.3-114
 Surrogate: 4-Bromofluorobenzene 91.7 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 67.5 % 41-142
 Surrogate: 1-Chlorooctadecane 69.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 6 (H902538-03)

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTEx	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 92.8 % 90.4-111

Surrogate: Toluene-d8 105 % 85.3-114

Surrogate: 4-Bromofluorobenzene 89.5 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 68.2 % 41-142

Surrogate: 1-Chlorooctadecane 71.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 7 (H902538-04)

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTEX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 94.2 % 90.4-111
 Surrogate: Toluene-d8 106 % 85.3-114
 Surrogate: 4-Bromofluorobenzene 88.3 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	512	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 67.7 % 41-142
 Surrogate: 1-Chlorooctadecane 72.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 9 (H902538-05)

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTEX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 93.1 % 90.4-111

Surrogate: Toluene-d8 105 % 85.3-114

Surrogate: 4-Bromofluorobenzene 88.6 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3280	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 68.6 % 41-142

Surrogate: 1-Chlorooctadecane 71.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 10 (H902538-06)

BTX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 92.3 % 90.4-111
 Surrogate: Toluene-d8 104 % 85.3-114
 Surrogate: 4-Bromofluorobenzene 88.2 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 70.2 % 41-142
 Surrogate: 1-Chlorooctadecane 73.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 11 (H902538-07)

BTX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 96.6 % 90.4-111

Surrogate: Toluene-d8 105 % 85.3-114

Surrogate: 4-Bromofluorobenzene 89.5 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	193	96.3	200	1.33	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	184	91.8	200	1.43	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 90.5 % 41-142

Surrogate: 1-Chlorooctadecane 92.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 12 (H902538-08)

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTEx	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 95.0 % 90.4-111

Surrogate: Toluene-d8 103 % 85.3-114

Surrogate: 4-Bromofluorobenzene 87.7 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	784	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	193	96.3	200	1.33	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	184	91.8	200	1.43	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 85.9 % 41-142

Surrogate: 1-Chlorooctadecane 87.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 13 (H902538-09)

BTX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 93.7 % 90.4-111
 Surrogate: Toluene-d8 105 % 85.3-114
 Surrogate: 4-Bromofluorobenzene 88.8 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	912	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	193	96.3	200	1.33	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	184	91.8	200	1.43	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 82.7 % 41-142
 Surrogate: 1-Chlorooctadecane 86.8 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 14 (H902538-10)

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTEX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 93.4 % 90.4-111
 Surrogate: Toluene-d8 105 % 85.3-114
 Surrogate: 4-Bromofluorobenzene 88.9 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5680	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	193	96.3	200	1.33	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	184	91.8	200	1.43	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 92.5 % 41-142
 Surrogate: 1-Chlorooctadecane 94.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 15 (H902538-11)

BTX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 95.2 % 90.4-111

Surrogate: Toluene-d8 105 % 85.3-114

Surrogate: 4-Bromofluorobenzene 85.7 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	608	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	193	96.3	200	1.33	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	184	91.8	200	1.43	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 89.2 % 41-142

Surrogate: 1-Chlorooctadecane 92.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 16 (H902538-12)

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26		
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44		
Total BTEX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 92.5 % 90.4-111

Surrogate: Toluene-d8 105 % 85.3-114

Surrogate: 4-Bromofluorobenzene 89.9 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	640	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	193	96.3	200	1.33	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	184	91.8	200	1.43	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 88.8 % 41-142

Surrogate: 1-Chlorooctadecane 91.3 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/23/2019
 Reported: 07/24/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/23/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SP 17 (H902538-13)

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.99	99.4	2.00	3.26	
Toluene*	<0.025	0.025	07/24/2019	ND	2.30	115	2.00	0.462	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.27	114	2.00	1.48	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	7.20	120	6.00	1.44	
Total BTEX	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 94.7 % 90.4-111

Surrogate: Toluene-d8 106 % 85.3-114

Surrogate: 4-Bromofluorobenzene 87.5 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	07/24/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	193	96.3	200	1.33	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	184	91.8	200	1.43	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 88.3 % 41-142

Surrogate: 1-Chlorooctadecane 89.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene", written over a light blue horizontal line.

Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1/2

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST																	
Project Manager: Cliff Brunson				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH Extended</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTEX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">CL</div> </div>																	
Address: P.O. Box 805				Company:																					
City: Hobbs State: NM Zip: 88241				Attn:																					
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																					
Project #: Project Owner: COG				City:																					
Project Name: Pygmy 27-H 9-24-19				State: Zip:																					
Project Location: 176				Phone #:																					
Sampler Name: 16				Fax #:																					
FOR LAB USE ONLY																									
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.	SAMPLING																
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME											
H902538																									
1	SP 2					X				X			7-23	901	X	X	X								
2	SP 5					X				X				1001	X	X	X								
3	SP 6					X				X				1020	X	X	X								
4	SP 7					X				X				1049	X	X	X								
5	SP 9					X				X				1130	X	X	X								
6	SP 10					X				X				1144	X	X	X								
7	SP 11					X				X				1205	X	X	X								
8	SP 12					X				X				1255	X	X	X								
9	SP 13					X				X				111	X	X	X								
10	SP 14					X				X				130	X	X	X								

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Relinquished By:	Date: 7-23-19	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: 10:30		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:		RUSH!! Brought to lab from field.	
Delivered By: (Circle One)	12.08 P. #97	Sample Condition		
Sampler - UPS - Bus - Other:	Corrected 12.48	Cool <input type="checkbox"/> Yes <input type="checkbox"/> No Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	CHECKED BY: (Initials)	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2/2

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST																													
Project Manager: Cliff Brunson				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPT Extended</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">CL</div> </div>																													
Address: P.O. Box 805				Company:																																	
City: Hobbs State: NM Zip: 88241				Attn:																																	
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																																	
Project #: Project Owner: COG				City:																																	
Project Name: Pygmy 27-1H 4-24-19				State: Zip:																																	
Project Location: 176				Phone #:																																	
Sampler Name: ✓				Fax #:																																	
FOR LAB USE ONLY																																					
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		MATRIX		PRESERV.		SAMPLING																									
				GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME													
HAD2538		Sp 15		G		1		X								X						7-23		150		X											
12		Sp 16		G		1		X								X						7-23		200		X											
13		Sp 17		G		1		X								L						7-22		229		X											

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Relinquished By:	Date: 7-23-19 Time: 16:50	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:
Relinquished By:	Date:	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:
Delivered By: (Circle One) R.O.E. #97	Sample Condition	CHECKED BY:	REMARKS: Rush! Brought to lab from field.
Sampler - UPS - Bus - Other: Corrected 7-24-19	Cool <input type="checkbox"/> Yes <input type="checkbox"/> No Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	(Initials)	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 25, 2019

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: PYGMY 27 - 1H

Enclosed are the results of analyses for samples received by the laboratory on 07/24/19 16:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 8 (H902545-01)

BTEX 8260B		mg/kg		Analyzed By: ms				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54	
Total BTEX	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 90.3 % 90.4-111

Surrogate: Toluene-d8 104 % 85.3-114

Surrogate: 4-Bromofluorobenzene 94.2 % 80.1-121

Chloride, SM4500Cl-B			mg/kg					Analyzed By: AC	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M			mg/kg					Analyzed By: MS	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 78.1 % 41-142

Surrogate: 1-Chlorooctadecane 80.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 18 (H902545-02)

BTEx 8260B		mg/kg	Analyzed By: ms					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54	
Total BTEX	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 89.7 % 90.4-111

Surrogate: Toluene-d8 104 % 85.3-114

Surrogate: 4-Bromofluorobenzene 93.8 % 80.1-121

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 71.3 % 41-142

Surrogate: 1-Chlorooctadecane 75.8 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
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 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 19 (H902545-03)

BTX 8260B		mg/kg		Analyzed By: ms				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54	
Total BTX	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 90.3 % 90.4-111

Surrogate: Toluene-d8 106 % 85.3-114

Surrogate: 4-Bromofluorobenzene 97.9 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 77.0 % 41-142

Surrogate: 1-Chlorooctadecane 81.3 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
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 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 20 (H902545-04)

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52		
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54		
Total BTEX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 91.6 % 90.4-111
 Surrogate: Toluene-d8 104 % 85.3-114
 Surrogate: 4-Bromofluorobenzene 92.3 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	<10.0	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	<10.0	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane 68.2 % 41-142
 Surrogate: 1-Chlorooctadecane 74.9 % 37.6-147

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Analytical Results For:

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Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 21 (H902545-05)

BTEx 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52		
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54		
Total BTEx	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 91.4 % 90.4-111

Surrogate: Toluene-d8 103 % 85.3-114

Surrogate: 4-Bromofluorobenzene 93.7 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	07/25/2019	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/25/2019	ND	194	97.1	200	4.87	
DRO >C10-C28*	<10.0	10.0	07/25/2019	ND	189	94.7	200	2.46	
EXT DRO >C28-C36	<10.0	10.0	07/25/2019	ND					

Surrogate: 1-Chlorooctane 68.5 % 41-142

Surrogate: 1-Chlorooctadecane 70.9 % 37.6-147

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Analytical Results For:

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 P.O. Box 805
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 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 22 (H902545-06)

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54	
Total BTEx	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 90.5 % 90.4-111

Surrogate: Toluene-d8 103 % 85.3-114

Surrogate: 4-Bromofluorobenzene 93.2 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/25/2019	ND	194	97.1	200	4.87	
DRO >C10-C28*	<10.0	10.0	07/25/2019	ND	189	94.7	200	2.46	
EXT DRO >C28-C36	<10.0	10.0	07/25/2019	ND					

Surrogate: 1-Chlorooctane 65.3 % 41-142

Surrogate: 1-Chlorooctadecane 67.9 % 37.6-147

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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 23 (H902545-07)

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54	
Total BTEx	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 92.9 % 90.4-111

Surrogate: Toluene-d8 104 % 85.3-114

Surrogate: 4-Bromofluorobenzene 93.4 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	13600	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/25/2019	ND	194	97.1	200	4.87	
DRO >C10-C28*	<10.0	10.0	07/25/2019	ND	189	94.7	200	2.46	
EXT DRO >C28-C36	<10.0	10.0	07/25/2019	ND					

Surrogate: 1-Chlorooctane 73.1 % 41-142

Surrogate: 1-Chlorooctadecane 74.9 % 37.6-147

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Analytical Results For:

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 Cliff Brunson
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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 24 (H902545-08)

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54	
Total BTEx	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 92.0 % 90.4-111

Surrogate: Toluene-d8 104 % 85.3-114

Surrogate: 4-Bromofluorobenzene 92.3 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	07/25/2019	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/25/2019	ND	194	97.1	200	4.87	
DRO >C10-C28*	<10.0	10.0	07/25/2019	ND	189	94.7	200	2.46	
EXT DRO >C28-C36	<10.0	10.0	07/25/2019	ND					

Surrogate: 1-Chlorooctane 66.9 % 41-142

Surrogate: 1-Chlorooctadecane 73.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 25 (H902545-09)

BTEX 8260B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52		
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800		
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447		
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54		
Total BTEX	<0.150	0.150	07/24/2019	ND						

Surrogate: Dibromofluoromethane 93.1 % 90.4-111

Surrogate: Toluene-d8 105 % 85.3-114

Surrogate: 4-Bromofluorobenzene 93.3 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/25/2019	ND	187	93.7	200	2.27	
DRO >C10-C28*	<10.0	10.0	07/25/2019	ND	176	87.9	200	3.10	
EXT DRO >C28-C36	<10.0	10.0	07/25/2019	ND					

Surrogate: 1-Chlorooctane 88.4 % 41-142

Surrogate: 1-Chlorooctadecane 97.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 26 (H902545-10)

BTEx 8260B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/24/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/24/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/24/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/24/2019	ND	6.86	114	6.00	1.54	
Total BTEx	<0.150	0.150	07/24/2019	ND					

Surrogate: Dibromofluoromethane 92.9 % 90.4-111

Surrogate: Toluene-d8 104 % 85.3-114

Surrogate: 4-Bromofluorobenzene 90.9 % 80.1-121

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/25/2019	ND	187	93.7	200	2.27	
DRO >C10-C28*	<10.0	10.0	07/25/2019	ND	176	87.9	200	3.10	
EXT DRO >C28-C36	<10.0	10.0	07/25/2019	ND					

Surrogate: 1-Chlorooctane 82.8 % 41-142

Surrogate: 1-Chlorooctadecane 91.1 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/24/2019
 Reported: 07/25/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/24/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 27 (H902545-11)

BTX 8260B		mg/kg	Analyzed By: ms					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.025	0.025	07/25/2019	ND	1.90	95.0	2.00	1.52	
Toluene*	<0.025	0.025	07/25/2019	ND	2.11	105	2.00	0.800	
Ethylbenzene*	<0.025	0.025	07/25/2019	ND	2.14	107	2.00	0.447	
Total Xylenes*	<0.075	0.075	07/25/2019	ND	6.86	114	6.00	1.54	
Total BTX	<0.150	0.150	07/25/2019	ND					

Surrogate: Dibromofluoromethane 89.8 % 90.4-111

Surrogate: Toluene-d8 101 % 85.3-114

Surrogate: 4-Bromofluorobenzene 127 % 80.1-121

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	07/25/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/25/2019	ND	187	93.7	200	2.27	
DRO >C10-C28*	<10.0	10.0	07/25/2019	ND	176	87.9	200	3.10	
EXT DRO >C28-C36	<10.0	10.0	07/25/2019	ND					

Surrogate: 1-Chlorooctane 67.2 % 41-142

Surrogate: 1-Chlorooctadecane 73.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a light blue rectangular background.

Celey D. Keene, Lab Director/Quality Manager

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST															
Project Manager: Cliff Brunson				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPT Extended</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTER</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">C1</div> </div>															
Address: P.O. Box 805				Company:																			
City: Hobbs State: NM Zip: 88241				Attn:																			
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																			
Project #: Project Owner: COG				City:																			
Project Name: Pygmy 27-1H (4-29-19)				State: Zip:																			
Project Location: 176				Phone #:																			
Sampler Name: ✓				Fax #:																			
FOR LAB USE ONLY																							
Lab I.D.		Sample I.D.		(GRAB OR COMPOUND)		MATRIX		PRESERV.		SAMPLING													
				# CONTAINERS		GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER :		ACID/BASE: ICE / COOL OTHER :		DATE TIME													
H902545				C 1		X		X		7-24 10:30		X X X											
1 Sp 00				C 1		X		X		11:11		X X X											
2 Sp 18				C 1		X		X		11:46		X X X											
3 Sp 19				C 1		X		X		12:12		X X X											
4 Sp 20				C 1		X		X		12:55		X X X											
5 Sp 21				C 1		X		X		11:5		X X X											
6 Sp 22				C 1		X		X		1:30		X X X											
7 Sp 23				C 1		X		X		1:45		X X X											
8 Sp 24				C 1		X		X		1:57		X X X											
9 Sp 25				C 1		X		X		2:13		X X X											
10 Sp 26				C 1		X		X															

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Relinquished By: <i>[Signature]</i>		Date: 7-29-19	Received By: <i>[Signature]</i>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:	
Time: 16:55					Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Relinquished By: <i>[Signature]</i>		Date:	Received By:		REMARKS: <i>RUSH!!</i>			
Time:								
Delivered By: (Circle One) <i>5.1</i> <i>#97</i>		Sample Condition		CHECKED BY: (Initials)				
Sampler - UPS - Bus - Other: <i>Corrected 5.5</i>		Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No		<i>TS</i>				

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

1/2



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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 31, 2019

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: PYGMY 27 - 1H

Enclosed are the results of analyses for samples received by the laboratory on 07/26/19 10:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/26/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/25/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 12 (H902569-01)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	07/29/2019	ND	432	108	400	0.00	QR-03	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 114 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/26/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/25/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 13 (H902569-02)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEx	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	07/29/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane 98.9 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/26/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/25/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 15 (H902569-03)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	2.03	102	2.00	3.03	
Toluene*	<0.050	0.050	07/30/2019	ND	2.08	104	2.00	2.58	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.99	99.6	2.00	3.38	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.99	99.9	6.00	3.17	
Total BTX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	07/29/2019	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane 98.1 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/26/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/25/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 16 (H902569-04)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	2.03	102	2.00	3.03	
Toluene*	<0.050	0.050	07/30/2019	ND	2.08	104	2.00	2.58	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.99	99.6	2.00	3.38	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.99	99.9	6.00	3.17	
Total BTX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	07/29/2019	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane 92.4 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/26/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/25/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 28 (H902569-05)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	2.03	102	2.00	3.03	
Toluene*	<0.050	0.050	07/30/2019	ND	2.08	104	2.00	2.58	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.99	99.6	2.00	3.38	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.99	99.9	6.00	3.17	
Total BTX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	07/29/2019	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 116 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a light blue horizontal line.

Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST																																	
Project Manager: Cliff Brunson				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH Extended</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTex</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">CL</div> </div>																																	
Address: P.O. Box 805				Company:																																					
City: Hobbs State: NM Zip: 88241				Attn:																																					
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:																																					
Project #: Project Owner: COC				City:																																					
Project Name: Pygmy 27-1H 4.24-19				State: Zip:																																					
Project Location: 176				Phone #:																																					
Sampler Name: 10				Fax #:																																					
FOR LAB USE ONLY																																									
Lab I.D.		Sample I.D.		(GRAB OR COMP.)		CONTAINERS		MATRIX		PRESERV.		SAMPLING																													
								GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID/BASE:		ICE / COOL		OTHER:		DATE		TIME													
H902569				C		1																				7-25		1255													
1		SP12		C		1																						111													
2		SP13		C		1																						133													
3		SP15		C		1																						155													
4		SP16		C		1																						219													
5		SP 28		C		1																																			

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Relinquished By:		Date: 7-25-19		Received By: Jennifer Beckey		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:	
Time: 5:00		Date: 7-26-19		Received By: Jauara Oldakor		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Relinquished By: J. G. Beckey		Time: 10:55				REMARKS:			
Delivered By: (Circle One) 4.62		#97		Sample Condition					
Sampler - UPS - Bus - Other: Corrected 502				Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No					
				CHECKED BY: (Initials)					

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 31, 2019

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: PYGMY 27 - 1H

Enclosed are the results of analyses for samples received by the laboratory on 07/30/19 8:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/30/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/29/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 30 (H902591-01)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	1.99	99.5	2.00	3.57	
Toluene*	<0.050	0.050	07/30/2019	ND	2.06	103	2.00	1.91	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.97	98.4	2.00	1.50	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.93	98.8	6.00	1.41	
Total BTEx	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	07/30/2019	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 115 % 41-142

Surrogate: 1-Chlorooctadecane 122 % 37.6-147

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/30/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/29/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 31 (H902591-02)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	1.99	99.5	2.00	3.57	
Toluene*	<0.050	0.050	07/30/2019	ND	2.06	103	2.00	1.91	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.97	98.4	2.00	1.50	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.93	98.8	6.00	1.41	
Total BTX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	07/30/2019	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 107 % 41-142

Surrogate: 1-Chlorooctadecane 112 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/30/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/29/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 32 (H902591-03)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	1.99	99.5	2.00	3.57	
Toluene*	<0.050	0.050	07/30/2019	ND	2.06	103	2.00	1.91	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.97	98.4	2.00	1.50	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.93	98.8	6.00	1.41	
Total BTX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	07/30/2019	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 95.8 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/30/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/29/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 33 (H902591-04)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	1.99	99.5	2.00	3.57	
Toluene*	<0.050	0.050	07/30/2019	ND	2.06	103	2.00	1.91	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.97	98.4	2.00	1.50	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.93	98.8	6.00	1.41	
Total BTEX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	07/30/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 99.5 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/30/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/29/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 34 (H902591-05)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	1.99	99.5	2.00	3.57	
Toluene*	<0.050	0.050	07/30/2019	ND	2.06	103	2.00	1.91	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.97	98.4	2.00	1.50	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.93	98.8	6.00	1.41	
Total BTEX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	07/30/2019	ND	432	108	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 96.9 % 41-142

Surrogate: 1-Chlorooctadecane 99.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received: 07/30/2019
 Reported: 07/31/2019
 Project Name: PYGMY 27 - 1H
 Project Number: 4-24-19
 Project Location: COG - 176

Sampling Date: 07/29/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 35 (H902591-06)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/30/2019	ND	1.99	99.5	2.00	3.57	
Toluene*	<0.050	0.050	07/30/2019	ND	2.06	103	2.00	1.91	
Ethylbenzene*	<0.050	0.050	07/30/2019	ND	1.97	98.4	2.00	1.50	
Total Xylenes*	<0.150	0.150	07/30/2019	ND	5.93	98.8	6.00	1.41	
Total BTX	<0.300	0.300	07/30/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	07/30/2019	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/30/2019	ND	206	103	200	2.76	
DRO >C10-C28*	<10.0	10.0	07/30/2019	ND	228	114	200	12.5	
EXT DRO >C28-C36	<10.0	10.0	07/30/2019	ND					

Surrogate: 1-Chlorooctane 94.9 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a light blue horizontal line.

Celey D. Keene, Lab Director/Quality Manager

**• CARDINAL LABORATORIES**


101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: BBC Brunson, Inc.				BILL TO				ANALYSIS REQUEST											
Project Manager: Cliff Brunson				P.O. #:				<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; margin-right: 10px;">TPH Extended</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; margin-right: 10px;">BTEX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em;">c1</div> </div>											
Address: P.O. Box 805				Company:															
City: Hobbs State: NM Zip: 88241				Attn:															
Phone #: 575-397-6388 Fax #: 575-397-0397				Address:															
Project #: Project Owner: CCG				City:															
Project Name: Pygmy 27-1H 4-24-19				State: Zip:															
Project Location: 176				Phone #:															
Sampler Name: ✓				Fax #:															
FOR LAB USE ONLY																			
Lab I.D.		Sample I.D.		GRAB OR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.		SAMPLING							
						GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME			
H902591				C	1			X				X			7-29	105			
1		SP 30		C	1			X				X			135	135			
2		SP 31		C	1			X				X			158	158			
3		SP 32		C	1			X				X			219	219			
4		SP 33		C	1			X				X			239	239			
5		SP 34		C	1			X				X			308	308			
6		SP 35		C	1			X				X							

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Relinquished By: 		Date: 7-29-19	Received By: Jennifer Gully	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:
		Time: 5:00		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:
Relinquished By: Jennifer Gully		Date: 7-30-19	Received By: Tamara Oldaker	REMARKS: Rush !!
		Time: 8:40		
Delivered By: (Circle One) -8.9°C #57		Sample Condition		
Sampler - UPS - Bus - Other: Corrected -8.5°C		Cool Intact		
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No		
		CHECKED BY: (Initials) TO		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



Certificate of Analysis Summary 663401

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Contact: Sheldon Hitchcock

Project Location:

Date Received in Lab: Wed 06.03.2020 16:10

Report Date: 06.04.2020 12:34

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663401-001					
	<i>Field Id:</i>	SP-9					
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL					
	<i>Sampled:</i>	06.03.2020 12:20					
Chloride by EPA 300	<i>Extracted:</i>	06.03.2020 17:07					
	<i>Analyzed:</i>	06.03.2020 20:00					
	<i>Units/RL:</i>	mg/kg RL					
Chloride		413 9.94					

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 663401

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St. 1

06.04.2020

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 (T104704221-20-17)
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)



06.04.2020

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **663401**

Pygmy 27 St. 1

Project Address:

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) 663401. 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. 663401 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 663401

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-9	S	06.03.2020 12:20		663401-001



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St. 1

Project ID:

Work Order Number(s): 663401

Report Date: 06.04.2020

Date Received: 06.03.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 663401****COG Operating LLC, Artesia, NM**

Pygmy 27 St. 1

Sample Id: **SP-9**

Matrix: Soil

Date Received: 06.03.2020 16:10

Lab Sample Id: 663401-001

Date Collected: 06.03.2020 12:20

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.03.2020 17:07

Basis: Wet Weight

Seq Number: 3127912

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	413	9.94	mg/kg	06.03.2020 20:00		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

Pygmy 27 St. 1

Analytical Method: Chloride by EPA 300

Seq Number: 3127912

MB Sample Id: 7704705-1-BLK

Matrix: Solid

LCS Sample Id: 7704705-1-BKS

Prep Method: E300P

Date Prep: 06.03.2020

LCSD Sample Id: 7704705-1-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	252	101	90-110	0	20	mg/kg	06.03.2020 16:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3127912

Parent Sample Id: 663293-001

Matrix: Soil

MS Sample Id: 663293-001 S

Prep Method: E300P

Date Prep: 06.03.2020

MSD Sample Id: 663293-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	634	202	802	83	802	83	90-110	0	20	mg/kg	06.03.2020 16:44	X

Analytical Method: Chloride by EPA 300

Seq Number: 3127912

Parent Sample Id: 663365-003

Matrix: Soil

MS Sample Id: 663365-003 S

Prep Method: E300P

Date Prep: 06.03.2020

MSD Sample Id: 663365-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	385	200	568	92	570	93	90-110	0	20	mg/kg	06.03.2020 18:36	

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

Work Order No:

1003401

Page 1 of 1

Work Order Comments
<p>Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/></p> <p>State of Project:</p> <p>Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/></p> <p>Deliverables: EDD <input type="checkbox"/> ADaPT <input type="checkbox"/> Other:</p>

ANALYSIS REQUEST								Preservative Codes
								MeOH: Me
								None: NO
								HNO ₃ : HN
								H ₂ SO ₄ : H2

HCL: HL
NaOH: Na
Zn Acetate+ NaOH: Zn
TAT starts the day received by the lab. it received by 4:00pm

[illegible]

1631 / 245.1 / 7470 / 7471 : Hg

Date/Time

2	4
---	---

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 06.03.2020 04.10.00 PM**Work Order #:** 663401**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)?		
#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:

Elizabeth McClellan

Date: 06.03.2020

Checklist reviewed by:

Jessica Kramer

Date: 06.04.2020



Certificate of Analysis Summary 663402

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St 1

Project Id:

Date Received in Lab: Wed 06.03.2020 16:10

Contact: Sheldon Hitchcock

Report Date: 06.04.2020 13:40

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663402-001	663402-002	663402-003	663402-004	663402-005	663402-006
	<i>Field Id:</i>	B-1	B-2	B-3	B-4	B-5	B-6
	<i>Depth:</i>	4- ft	4- ft	4- ft	4- ft	4- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	06.03.2020 12:00	06.03.2020 12:02	06.03.2020 12:04	06.03.2020 12:06	06.03.2020 12:08	06.03.2020 12:10
BTEX by EPA 8021B	<i>Extracted:</i>	06.03.2020 17:25	06.03.2020 17:25	06.03.2020 17:25	06.03.2020 17:25	06.03.2020 17:25	06.03.2020 17:25
	<i>Analyzed:</i>	06.04.2020 03:06	06.04.2020 03:26	06.04.2020 03:46	06.04.2020 04:07	06.04.2020 04:27	06.04.2020 04:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398	<0.00395 0.00395	<0.00396 0.00396	<0.00399 0.00399	<0.00398 0.00398	<0.00401 0.00401
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	06.03.2020 17:30	06.03.2020 17:30	06.03.2020 17:30	06.03.2020 17:30	06.03.2020 17:30	06.03.2020 17:30
	<i>Analyzed:</i>	06.03.2020 20:42	06.03.2020 21:03	06.03.2020 21:10	06.03.2020 21:17	06.03.2020 21:24	06.03.2020 21:45
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		371 10.0	380 10.0	381 10.1	204 10.0	186 10.0	234 10.0
TPH By SW8015 Mod	<i>Extracted:</i>	06.03.2020 17:00	06.03.2020 17:00	06.03.2020 17:00	06.03.2020 17:00	06.03.2020 17:00	06.03.2020 17:00
	<i>Analyzed:</i>	06.03.2020 22:16	06.03.2020 22:36	06.03.2020 23:18	06.03.2020 23:39	06.03.2020 23:59	06.04.2020 00:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.8 49.8
Diesel Range Organics		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.8 49.8
Total TPH		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.8 49.8

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 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 663402

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St 1

Project Id:

Date Received in Lab: Wed 06.03.2020 16:10

Contact: Sheldon Hitchcock

Report Date: 06.04.2020 13:40

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663402-007	663402-008	663402-009	663402-010		
	<i>Field Id:</i>	B-7	B-8	B-9	B-10		
	<i>Depth:</i>	4- ft	4- ft	4- ft	4- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	06.03.2020 12:12	06.03.2020 12:14	06.03.2020 12:16	06.03.2020 12:18		
BTEX by EPA 8021B	<i>Extracted:</i>	06.03.2020 17:25	06.03.2020 17:25	06.03.2020 17:25	06.03.2020 17:25		
	<i>Analyzed:</i>	06.04.2020 05:08	06.04.2020 05:28	06.04.2020 05:49	06.04.2020 06:09		
	<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	<0.00201 0.00201	<0.00200 0.00200		
Toluene		<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200		
Ethylbenzene		<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200		
m,p-Xylenes		<0.00399 0.00399	<0.00396 0.00396	<0.00402 0.00402	<0.00401 0.00401		
o-Xylene		<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200		
Total Xylenes		<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200		
Total BTEX		<0.00200 0.00200	<0.00198 0.00198	<0.00201 0.00201	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	06.03.2020 17:30	06.03.2020 17:30	06.03.2020 17:30	06.03.2020 17:30		
	<i>Analyzed:</i>	06.03.2020 21:52	06.03.2020 21:59	06.03.2020 22:06	06.03.2020 22:13		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		223 10.1	200 9.92	231 10.0	246 10.0		
TPH By SW8015 Mod	<i>Extracted:</i>	06.03.2020 17:00	06.03.2020 17:00	06.03.2020 17:00	06.03.2020 17:00		
	<i>Analyzed:</i>	06.04.2020 00:40	06.03.2020 23:39	06.03.2020 23:59	06.04.2020 00:20		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons		<50.3 50.3	<49.9 49.9	<49.9 49.9	<50.0 50.0		
Diesel Range Organics		<50.3 50.3	<49.9 49.9	<49.9 49.9	<50.0 50.0		
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<49.9 49.9	<49.9 49.9	<50.0 50.0		
Total TPH		<50.3 50.3	<49.9 49.9	<49.9 49.9	<50.0 50.0		

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

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

Jessica Kramer
Project Manager



Analytical Report 663402

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St 1

06.04.2020

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 (T104704221-20-17)
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)



06.04.2020

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **663402**

Pygmy 27 St 1

Project Address:

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) 663402. 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. 663402 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 663402****COG Operating LLC, Artesia, NM**

Pygmy 27 St 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B-1	S	06.03.2020 12:00	4 ft	663402-001
B-2	S	06.03.2020 12:02	4 ft	663402-002
B-3	S	06.03.2020 12:04	4 ft	663402-003
B-4	S	06.03.2020 12:06	4 ft	663402-004
B-5	S	06.03.2020 12:08	4 ft	663402-005
B-6	S	06.03.2020 12:10	4 ft	663402-006
B-7	S	06.03.2020 12:12	4 ft	663402-007
B-8	S	06.03.2020 12:14	4 ft	663402-008
B-9	S	06.03.2020 12:16	4 ft	663402-009
B-10	S	06.03.2020 12:18	4 ft	663402-010



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St 1

Project ID:

Work Order Number(s): 663402

Report Date: 06.04.2020

Date Received: 06.03.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-1** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-001 Date Collected: 06.03.2020 12:00 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	371	10.0	mg/kg	06.03.2020 20:42		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	06.03.2020 22:16	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	06.03.2020 22:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.03.2020 22:16	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.03.2020 22:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	06.03.2020 22:16	
o-Terphenyl	84-15-1	113	%	70-135	06.03.2020 22:16	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-1**
Lab Sample Id: 663402-001

Matrix: Soil
Date Collected: 06.03.2020 12:00

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.04.2020 03:06	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.04.2020 03:06	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.04.2020 03:06	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.04.2020 03:06	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.04.2020 03:06	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.04.2020 03:06	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.04.2020 03:06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.04.2020 03:06		
4-Bromofluorobenzene	460-00-4	95	%	70-130	06.04.2020 03:06		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-2** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-002 Date Collected: 06.03.2020 12:02 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	380	10.0	mg/kg	06.03.2020 21:03		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	06.03.2020 22:36	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	06.03.2020 22:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.03.2020 22:36	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.03.2020 22:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	06.03.2020 22:36	
o-Terphenyl	84-15-1	101	%	70-135	06.03.2020 22:36	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-2**
Lab Sample Id: 663402-002

Matrix: Soil
Date Collected: 06.03.2020 12:02

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.04.2020 03:26	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.04.2020 03:26	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.04.2020 03:26	U	1
m,p-Xylenes	179601-23-1	<0.00395	0.00395	mg/kg	06.04.2020 03:26	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.04.2020 03:26	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.04.2020 03:26	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.04.2020 03:26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.04.2020 03:26		
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.04.2020 03:26		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-3** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-003 Date Collected: 06.03.2020 12:04 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	381	10.1	mg/kg	06.03.2020 21:10		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	06.03.2020 23:18	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	06.03.2020 23:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.03.2020 23:18	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.03.2020 23:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	06.03.2020 23:18	
o-Terphenyl	84-15-1	108	%	70-135	06.03.2020 23:18	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-3**
Lab Sample Id: 663402-003

Matrix: Soil
Date Collected: 06.03.2020 12:04

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.04.2020 03:46	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.04.2020 03:46	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.04.2020 03:46	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	06.04.2020 03:46	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.04.2020 03:46	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.04.2020 03:46	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.04.2020 03:46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	06.04.2020 03:46		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.04.2020 03:46		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-4** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-004 Date Collected: 06.03.2020 12:06 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	204	10.0	mg/kg	06.03.2020 21:17		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	06.03.2020 23:39	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	06.03.2020 23:39	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	06.03.2020 23:39	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	06.03.2020 23:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	06.03.2020 23:39	
o-Terphenyl	84-15-1	107	%	70-135	06.03.2020 23:39	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-4**
Lab Sample Id: 663402-004

Matrix: Soil
Date Collected: 06.03.2020 12:06

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 04:07	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 04:07	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 04:07	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.04.2020 04:07	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 04:07	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 04:07	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 04:07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.04.2020 04:07		
1,4-Difluorobenzene	540-36-3	108	%	70-130	06.04.2020 04:07		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-5** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-005 Date Collected: 06.03.2020 12:08 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	186	10.0	mg/kg	06.03.2020 21:24		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	06.03.2020 23:59	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	06.03.2020 23:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.03.2020 23:59	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.03.2020 23:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	06.03.2020 23:59	
o-Terphenyl	84-15-1	102	%	70-135	06.03.2020 23:59	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-5**
Lab Sample Id: 663402-005

Matrix: Soil
Date Collected: 06.03.2020 12:08

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.04.2020 04:27	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.04.2020 04:27	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.04.2020 04:27	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.04.2020 04:27	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.04.2020 04:27	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.04.2020 04:27	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.04.2020 04:27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	06.04.2020 04:27		
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.04.2020 04:27		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-6** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-006 Date Collected: 06.03.2020 12:10 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	234	10.0	mg/kg	06.03.2020 21:45		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	06.04.2020 00:20	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	06.04.2020 00:20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.04.2020 00:20	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.04.2020 00:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	06.04.2020 00:20	
o-Terphenyl	84-15-1	105	%	70-135	06.04.2020 00:20	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-6**
Lab Sample Id: 663402-006

Matrix: Soil
Date Collected: 06.03.2020 12:10

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 04:48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 04:48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 04:48	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.04.2020 04:48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 04:48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 04:48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 04:48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.04.2020 04:48		
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.04.2020 04:48		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-7** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-007 Date Collected: 06.03.2020 12:12 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	223	10.1	mg/kg	06.03.2020 21:52		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	06.04.2020 00:40	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	06.04.2020 00:40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	06.04.2020 00:40	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	06.04.2020 00:40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	06.04.2020 00:40	
o-Terphenyl	84-15-1	106	%	70-135	06.04.2020 00:40	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-7**
Lab Sample Id: 663402-007

Matrix: Soil
Date Collected: 06.03.2020 12:12

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 05:08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 05:08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 05:08	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.04.2020 05:08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 05:08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 05:08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 05:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.04.2020 05:08		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.04.2020 05:08		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-8** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-008 Date Collected: 06.03.2020 12:14 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	200	9.92	mg/kg	06.03.2020 21:59		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127951

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	06.03.2020 23:39	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	06.03.2020 23:39	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.03.2020 23:39	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.03.2020 23:39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	06.03.2020 23:39	
o-Terphenyl	84-15-1	87	%	70-135	06.03.2020 23:39	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-8**
Lab Sample Id: 663402-008

Matrix: Soil
Date Collected: 06.03.2020 12:14

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.04.2020 05:28	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.04.2020 05:28	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.04.2020 05:28	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	06.04.2020 05:28	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.04.2020 05:28	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.04.2020 05:28	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.04.2020 05:28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	06.04.2020 05:28		
1,4-Difluorobenzene	540-36-3	108	%	70-130	06.04.2020 05:28		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-9** Matrix: Soil Date Received: 06.03.2020 16:10
 Lab Sample Id: 663402-009 Date Collected: 06.03.2020 12:16 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.03.2020 17:30 Basis: Wet Weight
 Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	231	10.0	mg/kg	06.03.2020 22:06		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.03.2020 17:00 Basis: Wet Weight
 Seq Number: 3127951

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	06.03.2020 23:59	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	06.03.2020 23:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.03.2020 23:59	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.03.2020 23:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	06.03.2020 23:59	
o-Terphenyl	84-15-1	97	%	70-135	06.03.2020 23:59	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-9**
Lab Sample Id: 663402-009

Matrix: Soil
Date Collected: 06.03.2020 12:16

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.04.2020 05:49	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.04.2020 05:49	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.04.2020 05:49	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.04.2020 05:49	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.04.2020 05:49	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.04.2020 05:49	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.04.2020 05:49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	06.04.2020 05:49		
4-Bromofluorobenzene	460-00-4	101	%	70-130	06.04.2020 05:49		



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-10**
Lab Sample Id: 663402-010

Matrix: Soil
Date Collected: 06.03.2020 12:18

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3127913

Date Prep: 06.03.2020 17:30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	246	10.0	mg/kg	06.03.2020 22:13		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3127951

Date Prep: 06.03.2020 17:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	06.04.2020 00:20	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	06.04.2020 00:20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.04.2020 00:20	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.04.2020 00:20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	06.04.2020 00:20	
o-Terphenyl	84-15-1	87	%	70-135	06.04.2020 00:20	



Certificate of Analytical Results 663402

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **B-10**
Lab Sample Id: 663402-010

Matrix: Soil
Date Collected: 06.03.2020 12:18

Date Received: 06.03.2020 16:10
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3127952

Prep Method: SW5035A

% Moisture:

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 06:09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 06:09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 06:09	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.04.2020 06:09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 06:09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 06:09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 06:09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.04.2020 06:09		
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.04.2020 06:09		



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

Pygmy 27 St 1

Analytical Method: Chloride by EPA 300

Seq Number: 3127913

MB Sample Id: 7704725-1-BLK

Matrix: Solid

LCS Sample Id: 7704725-1-BKS

Prep Method: E300P

Date Prep: 06.03.2020

LCSD Sample Id: 7704725-1-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	252	101	90-110	0	20	mg/kg	06.03.2020 20:28	

Analytical Method: Chloride by EPA 300

Seq Number: 3127913

Parent Sample Id: 663402-001

Matrix: Soil

MS Sample Id: 663402-001 S

Prep Method: E300P

Date Prep: 06.03.2020

MSD Sample Id: 663402-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	371	201	559	94	560	94	90-110	0	20	mg/kg	06.03.2020 20:49	

Analytical Method: Chloride by EPA 300

Seq Number: 3127913

Parent Sample Id: 663403-001

Matrix: Soil

MS Sample Id: 663403-001 S

Prep Method: E300P

Date Prep: 06.03.2020

MSD Sample Id: 663403-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	200	196	98	196	98	90-110	0	20	mg/kg	06.03.2020 22:27	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127957

MB Sample Id: 7704754-1-BLK

Matrix: Solid

LCS Sample Id: 7704754-1-BKS

Prep Method: SW8015P

Date Prep: 06.03.2020

LCSD Sample Id: 7704754-1-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	971	97	907	91	70-135	7	35	mg/kg	06.03.2020 13:02	
Diesel Range Organics	<50.0	1000	1020	102	1010	101	70-135	1	35	mg/kg	06.03.2020 13:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		117		110		70-135	%	06.03.2020 13:02
o-Terphenyl	98		108		108		70-135	%	06.03.2020 13:02

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127951

MB Sample Id: 7704753-1-BLK

Matrix: Solid

LCS Sample Id: 7704753-1-BKS

Prep Method: SW8015P

Date Prep: 06.03.2020

LCSD Sample Id: 7704753-1-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	794	79	973	97	70-135	20	35	mg/kg	06.03.2020 13:02	
Diesel Range Organics	<50.0	1000	814	81	1000	100	70-135	21	35	mg/kg	06.03.2020 13:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	72		107		132		70-135	%	06.03.2020 13:02
o-Terphenyl	72		97		102		70-135	%	06.03.2020 13:02

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

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

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

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



COG Operating LLC

Pygmy 27 St 1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127957

Matrix: Solid

Prep Method: SW8015P

Date Prep: 06.03.2020

MB Sample Id: 7704754-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

MB
Result

<50.0

Units

mg/kg

Analysis
Date

06.03.2020 12:41

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127951

Matrix: Solid

Prep Method: SW8015P

Date Prep: 06.03.2020

MB Sample Id: 7704753-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

MB
Result

<50.0

Units

mg/kg

Analysis
Date

06.03.2020 12:41

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127957

Matrix: Soil

Prep Method: SW8015P

Date Prep: 06.03.2020

Parent Sample Id: 663293-001

MS Sample Id: 663293-001 S

MSD Sample Id: 663293-001 SD

Parameter

Gasoline Range Hydrocarbons

Parent
Result

<50.1

Spike
Amount

1000

MS
Result

1040

MS
%Rec

104

MSD
Result

1020

MSD
%Rec

102

Limits

70-135

%RPD

2

RPD
Limit

35

Units

mg/kg

Analysis
Date

06.03.2020 15:58

Flag

Diesel Range Organics

94.1

1000

1200

111

1190

110

70-135

1

35

mg/kg

06.03.2020 15:58

Surrogate

1-Chlorooctane

MS
%Rec

115

MS
FlagMSD
%Rec

116

MSD
Flag

Limits

70-135

Units

%

Analysis
Date

06.03.2020 15:58

o-Terphenyl

115

118

70-135

%

06.03.2020 15:58

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127951

Matrix: Soil

Prep Method: SW8015P

Date Prep: 06.03.2020

Parent Sample Id: 663367-001

MS Sample Id: 663367-001 S

MSD Sample Id: 663367-001 SD

Parameter

Gasoline Range Hydrocarbons

Parent
Result

<50.0

Spike
Amount

1000

MS
Result

1190

MS
%Rec

119

MSD
Result

1220

MSD
%Rec

122

Limits

70-135

%RPD

2

RPD
Limit

35

Units

mg/kg

Analysis
Date

06.03.2020 15:58

Flag

Diesel Range Organics

<50.0

1000

1090

109

1090

109

70-135

0

35

mg/kg

06.03.2020 15:58

Surrogate

1-Chlorooctane

MS
%Rec

125

MS
FlagMSD
%Rec

127

MSD
Flag

Limits

70-135

Units

%

Analysis
Date

06.03.2020 15:58

o-Terphenyl

112

113

70-135

%

06.03.2020 15:58

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

Pygmy 27 St 1

Analytical Method: BTEX by EPA 8021B

Seq Number: 3127952

MB Sample Id: 7704745-1-BLK

Matrix: Solid

LCS Sample Id: 7704745-1-BKS

Prep Method: SW5035A

Date Prep: 06.03.2020

LCSD Sample Id: 7704745-1-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	0.108	108	0.108	108	70-130	0	35	mg/kg	06.04.2020 01:24	
Toluene	<0.00200	0.100	0.101	101	0.100	100	70-130	1	35	mg/kg	06.04.2020 01:24	
Ethylbenzene	<0.00200	0.100	0.0946	95	0.0911	91	71-129	4	35	mg/kg	06.04.2020 01:24	
m,p-Xylenes	<0.00400	0.200	0.193	97	0.185	93	70-135	4	35	mg/kg	06.04.2020 01:24	
o-Xylene	<0.00200	0.100	0.0986	99	0.0949	95	71-133	4	35	mg/kg	06.04.2020 01:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		108		109		70-130	%	06.04.2020 01:24
4-Bromofluorobenzene	94		91		91		70-130	%	06.04.2020 01:24

Analytical Method: BTEX by EPA 8021B

Seq Number: 3127952

Parent Sample Id: 663402-001

Matrix: Soil

MS Sample Id: 663402-001 S

Prep Method: SW5035A

Date Prep: 06.03.2020

MSD Sample Id: 663402-001 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	0.105	104	0.103	104	70-130	2	35	mg/kg	06.04.2020 02:04	
Toluene	<0.00201	0.101	0.0993	98	0.0976	98	70-130	2	35	mg/kg	06.04.2020 02:04	
Ethylbenzene	<0.00201	0.101	0.0936	93	0.0911	92	71-129	3	35	mg/kg	06.04.2020 02:04	
m,p-Xylenes	<0.00402	0.201	0.191	95	0.188	95	70-135	2	35	mg/kg	06.04.2020 02:04	
o-Xylene	<0.00201	0.101	0.0965	96	0.0899	91	71-133	7	35	mg/kg	06.04.2020 02:04	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		108		70-130	%	06.04.2020 02:04
4-Bromofluorobenzene	93		90		70-130	%	06.04.2020 02:04

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: 1603402

Project Manager:	Sheldon Hitchcock	Bill to: (if different)	
Company Name:	COG	Company Name:	
Address:		Address:	
City, State ZIP:		City, State ZIP:	
Phone:		Email:	

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 Crystal, NM (432) 704-5440
 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000 West Palm Beach, FL (561) 689-6701

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Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project: _____ Reporting Level: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other: _____	Work Order Comments: _____
--	----------------------------

Project Name:	Phoenix 22 St 1	Turn Around	<input type="checkbox"/>	Pres. Code	
Project Number:		Rush:	24hr		
Project Location:		Due Date:	6/14		
Sampler's Name:		Quote #:			
PO #:					

SAMPLE RECEIPT				ANALYSIS REQUEST		Preservative Codes	
Temperature (°C):	3.8	Temp Blank:	<input checked="" type="radio"/> Yes <input type="radio"/> No	Wet Ice:	<input checked="" type="radio"/> Yes <input type="radio"/> No	MeOH: Me	
Received Intact:	<input checked="" type="radio"/> Yes <input type="radio"/> No	Thermometer ID	HNMB07	None: NO		HCL: HL	
Cooler Custody Seals:	Yes <input type="radio"/> No <input checked="" type="radio"/>	Correction Factor:	-0.2	HNO3: HN		NaOH: Na	
Sample Custody Seals:	Yes <input type="radio"/> No <input checked="" type="radio"/>	Total Containers:	10	H2SO4: H2		Zn Acetate+ NaOH: Zn	

Lab ID	Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Sample Comments
B-1		S	6/3/20	12:00	4'	1	TPH
B-2				12:02			BTEX
B-3				12:04			Chlorides
B-4				12:06			
B-5				12:08			
B-6				12:10			
B-7				12:12			
B-8				12:14			
B-9				12:16			
B-10				12:18			

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
 Circle Method(s) and Metal(s) to be analyzed: TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

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
Sheldon Hitchcock		6/3/20 16:10			

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 06.03.2020 04.10.00 PM**Work Order #:** 663402**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: 06.03.2020

Checklist reviewed by:

Jessica Kramer

Date: 06.04.2020



Certificate of Analysis Summary 663403

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St 1

Project Id:

Contact: Sheldon Hitchcock

Project Location:

Date Received in Lab: Wed 06.03.2020 16:10

Report Date: 06.04.2020 13:41

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663403-001	663403-002	663403-003			
	<i>Field Id:</i>	SW-1	SW-2	SW-3			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	06.03.2020 12:30	06.03.2020 12:32	06.03.2020 12:34			
BTEX by EPA 8021B	<i>Extracted:</i>	06.03.2020 17:25	06.03.2020 17:25	06.03.2020 17:25			
	<i>Analyzed:</i>	06.04.2020 07:11	06.04.2020 07:31	06.04.2020 07:51			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200			
Toluene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200			
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200			
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398	<0.00401 0.00401			
o-Xylene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200			
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200			
Total BTEX		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200			
Chloride by EPA 300	<i>Extracted:</i>	06.03.2020 17:30	06.03.2020 17:30	06.03.2020 17:30			
	<i>Analyzed:</i>	06.03.2020 22:20	06.03.2020 22:40	06.03.2020 22:47			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		<10.0 10.0	153 10.1	448 9.92			
TPH By SW8015 Mod	<i>Extracted:</i>	06.03.2020 17:00	06.03.2020 17:00	06.03.2020 17:00			
	<i>Analyzed:</i>	06.03.2020 20:32	06.03.2020 20:53	06.04.2020 11:02			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons		<50.0 50.0	<50.1 50.1	<50.3 50.3			
Diesel Range Organics		<50.0 50.0	<50.1 50.1	<50.3 50.3			
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.1 50.1	<50.3 50.3			
Total TPH		<50.0 50.0	<50.1 50.1	<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 663403

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St 1

06.04.2020

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 (T104704221-20-17)
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)



06.04.2020

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **663403**

Pygmy 27 St 1

Project Address:

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) 663403. 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. 663403 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 663403

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-1	S	06.03.2020 12:30		663403-001
SW-2	S	06.03.2020 12:32		663403-002
SW-3	S	06.03.2020 12:34		663403-003



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St 1

Project ID:

Work Order Number(s): 663403

Report Date: 06.04.2020

Date Received: 06.03.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 663403

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **SW-1**
Lab Sample Id: 663403-001

Matrix: Soil
Date Collected: 06.03.2020 12:30

Date Received: 06.03.2020 16:10

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3127913

Prep Method: E300P

% Moisture:

Date Prep: 06.03.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	06.03.2020 22:20	U	1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3127951

Prep Method: SW8015P

% Moisture:

Date Prep: 06.03.2020 17:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	06.03.2020 20:32	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	06.03.2020 20:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.03.2020 20:32	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.03.2020 20:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	06.03.2020 20:32	
o-Terphenyl	84-15-1	94	%	70-135	06.03.2020 20:32	



Certificate of Analytical Results 663403

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **SW-1**
Lab Sample Id: 663403-001

Matrix: Soil
Date Collected: 06.03.2020 12:30

Date Received: 06.03.2020 16:10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Seq Number: 3127952

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.04.2020 07:11	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.04.2020 07:11	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.04.2020 07:11	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.04.2020 07:11	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.04.2020 07:11	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.04.2020 07:11	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.04.2020 07:11	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.04.2020 07:11		
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.04.2020 07:11		



Certificate of Analytical Results 663403

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **SW-2**
Lab Sample Id: 663403-002

Matrix: Soil
Date Collected: 06.03.2020 12:32

Date Received: 06.03.2020 16:10

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3127913

Prep Method: E300P

% Moisture:

Date Prep: 06.03.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	153	10.1	mg/kg	06.03.2020 22:40		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3127951

Prep Method: SW8015P

% Moisture:

Date Prep: 06.03.2020 17:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	06.03.2020 20:53	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	06.03.2020 20:53	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	06.03.2020 20:53	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	06.03.2020 20:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	06.03.2020 20:53	
o-Terphenyl	84-15-1	92	%	70-135	06.03.2020 20:53	



Certificate of Analytical Results 663403

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **SW-2**
Lab Sample Id: 663403-002

Matrix: Soil
Date Collected: 06.03.2020 12:32

Date Received: 06.03.2020 16:10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Seq Number: 3127952

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.04.2020 07:31	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.04.2020 07:31	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.04.2020 07:31	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.04.2020 07:31	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.04.2020 07:31	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.04.2020 07:31	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.04.2020 07:31	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	06.04.2020 07:31		
4-Bromofluorobenzene	460-00-4	92	%	70-130	06.04.2020 07:31		



Certificate of Analytical Results 663403

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **SW-3**
Lab Sample Id: 663403-003

Matrix: Soil
Date Collected: 06.03.2020 12:34

Date Received: 06.03.2020 16:10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.03.2020 17:30

Basis: Wet Weight

Seq Number: 3127913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	448	9.92	mg/kg	06.03.2020 22:47		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 06.03.2020 17:00

Basis: Wet Weight

Seq Number: 3127957

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	06.04.2020 11:02	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	06.04.2020 11:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	06.04.2020 11:02	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	06.04.2020 11:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	06.04.2020 11:02	
o-Terphenyl	84-15-1	106	%	70-135	06.04.2020 11:02	



Certificate of Analytical Results 663403

COG Operating LLC, Artesia, NM

Pygmy 27 St 1

Sample Id: **SW-3**
Lab Sample Id: 663403-003

Matrix: Soil
Date Collected: 06.03.2020 12:34

Date Received: 06.03.2020 16:10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.03.2020 17:25

Basis: Wet Weight

Seq Number: 3127952

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 07:51	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 07:51	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 07:51	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.04.2020 07:51	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 07:51	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 07:51	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 07:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.04.2020 07:51	
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.04.2020 07:51	



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

Pygmy 27 St 1

Analytical Method: Chloride by EPA 300

Seq Number: 3127913

MB Sample Id: 7704725-1-BLK

Matrix: Solid

LCS Sample Id: 7704725-1-BKS

Prep Method: E300P

Date Prep: 06.03.2020

LCSD Sample Id: 7704725-1-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	252	101	90-110	0	20	mg/kg	06.03.2020 20:28	

Analytical Method: Chloride by EPA 300

Seq Number: 3127913

Parent Sample Id: 663402-001

Matrix: Soil

MS Sample Id: 663402-001 S

Prep Method: E300P

Date Prep: 06.03.2020

MSD Sample Id: 663402-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	371	201	559	94	560	94	90-110	0	20	mg/kg	06.03.2020 20:49	

Analytical Method: Chloride by EPA 300

Seq Number: 3127913

Parent Sample Id: 663403-001

Matrix: Soil

MS Sample Id: 663403-001 S

Prep Method: E300P

Date Prep: 06.03.2020

MSD Sample Id: 663403-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	200	196	98	196	98	90-110	0	20	mg/kg	06.03.2020 22:27	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127957

MB Sample Id: 7704754-1-BLK

Matrix: Solid

LCS Sample Id: 7704754-1-BKS

Prep Method: SW8015P

Date Prep: 06.03.2020

LCSD Sample Id: 7704754-1-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	971	97	907	91	70-135	7	35	mg/kg	06.03.2020 13:02	
Diesel Range Organics	<50.0	1000	1020	102	1010	101	70-135	1	35	mg/kg	06.03.2020 13:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		117		110		70-135	%	06.03.2020 13:02
o-Terphenyl	98		108		108		70-135	%	06.03.2020 13:02

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127951

MB Sample Id: 7704753-1-BLK

Matrix: Solid

LCS Sample Id: 7704753-1-BKS

Prep Method: SW8015P

Date Prep: 06.03.2020

LCSD Sample Id: 7704753-1-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	794	79	973	97	70-135	20	35	mg/kg	06.03.2020 13:02	
Diesel Range Organics	<50.0	1000	814	81	1000	100	70-135	21	35	mg/kg	06.03.2020 13:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	72		107		132		70-135	%	06.03.2020 13:02
o-Terphenyl	72		97		102		70-135	%	06.03.2020 13:02

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

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

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

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



COG Operating LLC

Pygmy 27 St 1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127957

Matrix: Solid

Prep Method: SW8015P

Date Prep: 06.03.2020

MB Sample Id: 7704754-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

MB
Result

<50.0

Units

mg/kg

Analysis
Date

06.03.2020 12:41

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127951

Matrix: Solid

Prep Method: SW8015P

Date Prep: 06.03.2020

MB Sample Id: 7704753-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

MB
Result

<50.0

Units

mg/kg

Analysis
Date

06.03.2020 12:41

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127957

Matrix: Soil

Prep Method: SW8015P

Date Prep: 06.03.2020

Parent Sample Id: 663293-001

MS Sample Id: 663293-001 S

MSD Sample Id: 663293-001 SD

Parameter

Gasoline Range Hydrocarbons

Parent
Result

<50.1

Spike
Amount

1000

MS
Result

1040

MS
%Rec

104

MSD
Result

1020

MSD
%Rec

102

Limits

70-135

%RPD

2

RPD
Limit

35

Units

mg/kg

Analysis
Date

06.03.2020 15:58

Flag

Diesel Range Organics

94.1

1000

1200

111

1190

110

70-135

1

35

mg/kg

06.03.2020 15:58

Surrogate

1-Chlorooctane

MS
%Rec

115

MS
FlagMSD
%Rec

116

MSD
Flag

Limits

70-135

Units

%

Analysis
Date

06.03.2020 15:58

o-Terphenyl

115

118

70-135

%

06.03.2020 15:58

Analytical Method: TPH By SW8015 Mod

Seq Number: 3127951

Matrix: Soil

Prep Method: SW8015P

Date Prep: 06.03.2020

Parent Sample Id: 663367-001

MS Sample Id: 663367-001 S

MSD Sample Id: 663367-001 SD

Parameter

Gasoline Range Hydrocarbons

Parent
Result

<50.0

Spike
Amount

1000

MS
Result

1190

MS
%Rec

119

MSD
Result

1220

MSD
%Rec

122

Limits

70-135

%RPD

2

RPD
Limit

35

Units

mg/kg

Analysis
Date

06.03.2020 15:58

Flag

Diesel Range Organics

<50.0

1000

1090

109

1090

109

70-135

0

35

mg/kg

06.03.2020 15:58

Surrogate

1-Chlorooctane

MS
%Rec

125

MS
FlagMSD
%Rec

127

MSD
Flag

Limits

70-135

Units

%

Analysis
Date

06.03.2020 15:58

o-Terphenyl

112

113

70-135

%

06.03.2020 15:58

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

Pygmy 27 St 1

Analytical Method: BTEX by EPA 8021B

Seq Number: 3127952

MB Sample Id: 7704745-1-BLK

Matrix: Solid

LCS Sample Id: 7704745-1-BKS

Prep Method: SW5035A

Date Prep: 06.03.2020

LCSD Sample Id: 7704745-1-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	0.108	108	0.108	108	70-130	0	35	mg/kg	06.04.2020 01:24	
Toluene	<0.00200	0.100	0.101	101	0.100	100	70-130	1	35	mg/kg	06.04.2020 01:24	
Ethylbenzene	<0.00200	0.100	0.0946	95	0.0911	91	71-129	4	35	mg/kg	06.04.2020 01:24	
m,p-Xylenes	<0.00400	0.200	0.193	97	0.185	93	70-135	4	35	mg/kg	06.04.2020 01:24	
o-Xylene	<0.00200	0.100	0.0986	99	0.0949	95	71-133	4	35	mg/kg	06.04.2020 01:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		108		109		70-130	%	06.04.2020 01:24
4-Bromofluorobenzene	94		91		91		70-130	%	06.04.2020 01:24

Analytical Method: BTEX by EPA 8021B

Seq Number: 3127952

Parent Sample Id: 663402-001

Matrix: Soil

MS Sample Id: 663402-001 S

Prep Method: SW5035A

Date Prep: 06.03.2020

MSD Sample Id: 663402-001 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	0.105	104	0.103	104	70-130	2	35	mg/kg	06.04.2020 02:04	
Toluene	<0.00201	0.101	0.0993	98	0.0976	98	70-130	2	35	mg/kg	06.04.2020 02:04	
Ethylbenzene	<0.00201	0.101	0.0936	93	0.0911	92	71-129	3	35	mg/kg	06.04.2020 02:04	
m,p-Xylenes	<0.00402	0.201	0.191	95	0.188	95	70-135	2	35	mg/kg	06.04.2020 02:04	
o-Xylene	<0.00201	0.101	0.0965	96	0.0899	91	71-133	7	35	mg/kg	06.04.2020 02:04	

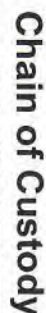
Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		108		70-130	%	06.04.2020 02:04
4-Bromofluorobenzene	93		90		70-130	%	06.04.2020 02:04

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



Work Order No: 1063403

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 Crasabad, NM (432) 704-5440

Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000 West Palm Beach, FL (561) 689-6707

Page 1 of 1
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Total	200.7 / 6010	200.8 / 6020:
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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	SiO ₂	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																															

1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenico, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenico 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 Xenico. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenico, 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
		6/3/20 16:10			

Revised Date 02/26/19 Rev. 2019.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 06.03.2020 04.10.00 PM

Work Order #: 663403

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: 06.03.2020

Checklist reviewed by:



Jessica Kramer

Date: 06.04.2020



Certificate of Analysis Summary 663531

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea, NM

Date Received in Lab: Thu 06.04.2020 16:25

Report Date: 06.05.2020 16:06

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	663531-001	663531-002	663531-003			
	Field Id:	SW-4	SW-5	SW-6			
	Depth:						
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	06.04.2020 14:30	06.04.2020 14:32	06.04.2020 14:34			
BTEX by EPA 8021B	Extracted:	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30			
	Analyzed:	06.04.2020 20:43	06.04.2020 21:04	06.04.2020 22:05			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199			
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199			
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199			
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00398 0.00398			
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199			
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199			
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199			
Chloride by EPA 300	Extracted:	06.04.2020 17:00	06.04.2020 17:00	06.04.2020 17:00			
	Analyzed:	06.04.2020 19:23	06.04.2020 19:30	06.04.2020 19:37			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		134 9.98	110 9.94	106 10.1			
TPH By SW8015 Mod	Extracted:	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30			
	Analyzed:	06.05.2020 09:54	06.05.2020 10:14	06.05.2020 10:35			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons		<50.2 50.2	<50.2 50.2	<50.2 50.2			
Diesel Range Organics		<50.2 50.2	<50.2 50.2	<50.2 50.2			
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.2 50.2	<50.2 50.2			
Total TPH		<50.2 50.2	<50.2 50.2	<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 663531

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St. 1

06.05.2020

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 (T104704221-20-17)
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)



06.05.2020

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

Reference: XENCO Report No(s): **663531**
Pygmy 27 St. 1
Project Address: Lea, 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) 663531. 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. 663531 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 663531

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-4	S	06.04.2020 14:30		663531-001
SW-5	S	06.04.2020 14:32		663531-002
SW-6	S	06.04.2020 14:34		663531-003



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St. 1

Project ID:

Work Order Number(s): 663531

Report Date: 06.05.2020

Date Received: 06.04.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 663531

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-4**
Lab Sample Id: 663531-001

Matrix: Soil
Date Collected: 06.04.2020 14:30

Date Received: 06.04.2020 16:25

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Prep Method: E300P

% Moisture:

Date Prep: 06.04.2020 17:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	134	9.98	mg/kg	06.04.2020 19:23		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128082

Prep Method: SW8015P

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 09:54	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 09:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 09:54	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 09:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	06.05.2020 09:54	
o-Terphenyl	84-15-1	112	%	70-135	06.05.2020 09:54	



Certificate of Analytical Results 663531

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-4**
Lab Sample Id: 663531-001

Matrix: Soil
Date Collected: 06.04.2020 14:30

Date Received: 06.04.2020 16:25

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Seq Number: 3128056

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.04.2020 20:43	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.04.2020 20:43	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.04.2020 20:43	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.04.2020 20:43	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.04.2020 20:43	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.04.2020 20:43	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.04.2020 20:43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	06.04.2020 20:43		
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.04.2020 20:43		



Certificate of Analytical Results 663531

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-5**
Lab Sample Id: 663531-002

Matrix: Soil
Date Collected: 06.04.2020 14:32

Date Received: 06.04.2020 16:25

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Prep Method: E300P

% Moisture:

Date Prep: 06.04.2020 17:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	110	9.94	mg/kg	06.04.2020 19:30		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128082

Prep Method: SW8015P

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 10:14	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 10:14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 10:14	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 10:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	06.05.2020 10:14	
o-Terphenyl	84-15-1	115	%	70-135	06.05.2020 10:14	



Certificate of Analytical Results 663531

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-5**
Lab Sample Id: 663531-002

Matrix: Soil
Date Collected: 06.04.2020 14:32

Date Received: 06.04.2020 16:25

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Seq Number: 3128056

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 21:04	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 21:04	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 21:04	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.04.2020 21:04	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 21:04	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 21:04	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 21:04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.04.2020 21:04		
4-Bromofluorobenzene	460-00-4	100	%	70-130	06.04.2020 21:04		



Certificate of Analytical Results 663531

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-6**
Lab Sample Id: 663531-003

Matrix: Soil
Date Collected: 06.04.2020 14:34

Date Received: 06.04.2020 16:25

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Prep Method: E300P

% Moisture:

Date Prep: 06.04.2020 17:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	106	10.1	mg/kg	06.04.2020 19:37		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128082

Prep Method: SW8015P

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 10:35	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 10:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 10:35	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 10:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	06.05.2020 10:35	
o-Terphenyl	84-15-1	115	%	70-135	06.05.2020 10:35	



Certificate of Analytical Results 663531

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-6**
Lab Sample Id: 663531-003

Matrix: Soil
Date Collected: 06.04.2020 14:34

Date Received: 06.04.2020 16:25

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Seq Number: 3128056

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.04.2020 22:05	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.04.2020 22:05	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.04.2020 22:05	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.04.2020 22:05	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.04.2020 22:05	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.04.2020 22:05	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.04.2020 22:05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	06.04.2020 22:05		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.04.2020 22:05		



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

Pygmy 27 St. 1

Analytical Method: Chloride by EPA 300

Seq Number: 3128048

MB Sample Id: 7704822-1-BLK

Matrix: Solid

LCS Sample Id: 7704822-1-BKS

Prep Method: E300P

Date Prep: 06.04.2020

LCSD Sample Id: 7704822-1-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	252	101	90-110	0	20	mg/kg	06.04.2020 18:06	

Analytical Method: Chloride by EPA 300

Seq Number: 3128048

Parent Sample Id: 663487-001

Matrix: Soil

MS Sample Id: 663487-001 S

Prep Method: E300P

Date Prep: 06.04.2020

MSD Sample Id: 663487-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	126	200	319	97	319	97	90-110	0	20	mg/kg	06.04.2020 18:27	

Analytical Method: Chloride by EPA 300

Seq Number: 3128048

Parent Sample Id: 663532-006

Matrix: Soil

MS Sample Id: 663532-006 S

Prep Method: E300P

Date Prep: 06.04.2020

MSD Sample Id: 663532-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	108	199	294	93	292	93	90-110	1	20	mg/kg	06.04.2020 20:26	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128082

MB Sample Id: 7704842-1-BLK

Matrix: Solid

LCS Sample Id: 7704842-1-BKS

Prep Method: SW8015P

Date Prep: 06.04.2020

LCSD Sample Id: 7704842-1-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	916	92	921	92	70-135	1	35	mg/kg	06.04.2020 14:13	
Diesel Range Organics	<50.0	1000	997	100	985	99	70-135	1	35	mg/kg	06.04.2020 14:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		111		110		70-135	%	06.04.2020 14:13
o-Terphenyl	112		121		106		70-135	%	06.04.2020 14:13

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128082

Matrix: Solid

MB Sample Id: 7704842-1-BLK

Prep Method: SW8015P

Date Prep: 06.04.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.04.2020 13:52	

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

Pygmy 27 St. 1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128082

Parent Sample Id: 663490-002

Matrix: Soil

MS Sample Id: 663490-002 S

Prep Method: SW8015P

Date Prep: 06.04.2020

MSD Sample Id: 663490-002 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	<49.9	998	1090	109	1100	110	70-135	1	35	mg/kg	06.04.2020 15:17	
Diesel Range Organics	<49.9	998	1270	127	1260	126	70-135	1	35	mg/kg	06.04.2020 15:17	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		122		70-135	%	06.04.2020 15:17
o-Terphenyl	114		117		70-135	%	06.04.2020 15:17

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128056

MB Sample Id: 7704782-1-BLK

Matrix: Solid

LCS Sample Id: 7704782-1-BKS

Prep Method: SW5035A

Date Prep: 06.04.2020

LCSD Sample Id: 7704782-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.111	111	0.119	119	70-130	7	35	mg/kg	06.04.2020 15:17	
Toluene	<0.00200	0.100	0.104	104	0.113	113	70-130	8	35	mg/kg	06.04.2020 15:17	
Ethylbenzene	<0.00200	0.100	0.0981	98	0.105	105	71-129	7	35	mg/kg	06.04.2020 15:17	
m,p-Xylenes	<0.00400	0.200	0.198	99	0.217	109	70-135	9	35	mg/kg	06.04.2020 15:17	
o-Xylene	<0.00200	0.100	0.102	102	0.109	109	71-133	7	35	mg/kg	06.04.2020 15:17	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		106		106		70-130	%	06.04.2020 15:17
4-Bromofluorobenzene	94		89		90		70-130	%	06.04.2020 15:17

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128056

Parent Sample Id: 663406-002

Matrix: Soil

MS Sample Id: 663406-002 S

Prep Method: SW5035A

Date Prep: 06.04.2020

MSD Sample Id: 663406-002 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	0.120	120	0.128	128	70-130	6	35	mg/kg	06.04.2020 15:58	
Toluene	<0.00200	0.0998	0.113	113	0.121	121	70-130	7	35	mg/kg	06.04.2020 15:58	
Ethylbenzene	<0.00200	0.0998	0.106	106	0.114	114	71-129	7	35	mg/kg	06.04.2020 15:58	
m,p-Xylenes	<0.00399	0.200	0.214	107	0.231	115	70-135	8	35	mg/kg	06.04.2020 15:58	
o-Xylene	<0.00200	0.0998	0.107	107	0.116	116	71-133	8	35	mg/kg	06.04.2020 15:58	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		108		70-130	%	06.04.2020 15:58
4-Bromofluorobenzene	91		95		70-130	%	06.04.2020 15:58

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

100350

[illegible]

ORIGINAL COPY

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 06.04.2020 04.25.00 PM**Work Order #:** 663531**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	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:

Elizabeth McClellan

Date: 06.04.2020

Checklist reviewed by:

Jessica Kramer

Date: 06.05.2020



Certificate of Analysis Summary 663532

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Date Received in Lab: Thu 06.04.2020 16:25

Contact: Sheldon Hitchcock

Report Date: 06.05.2020 16:37

Project Location: Lea, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663532-001	663532-002	663532-003	663532-004	663532-005	663532-006
	<i>Field Id:</i>	B-11	B-12	B-13	B-14	B-15	B-16
	<i>Depth:</i>	4- ft	4- ft	4- ft	4- ft	4- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	06.04.2020 14:00	06.04.2020 14:02	06.04.2020 14:04	06.04.2020 14:06	06.04.2020 14:08	06.04.2020 14:10
BTEX by EPA 8021B	<i>Extracted:</i>	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30
	<i>Analyzed:</i>	06.04.2020 22:25	06.04.2020 22:46	06.04.2020 23:06	06.04.2020 23:26	06.04.2020 23:47	06.05.2020 00:07
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202
m,p-Xylenes		<0.00400 0.00400	<0.00398 0.00398	<0.00403 0.00403	<0.00400 0.00400	<0.00396 0.00396	<0.00403 0.00403
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00198 0.00198	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	06.04.2020 17:00	06.04.2020 17:00	06.04.2020 17:00	06.04.2020 17:00	06.04.2020 17:00	06.04.2020 17:00
	<i>Analyzed:</i>	06.04.2020 19:44	06.04.2020 19:51	06.04.2020 19:58	06.04.2020 20:05	06.04.2020 20:12	06.04.2020 20:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		197 10.1	183 10.1	178 10.0	191 10.0	106 10.0	108 9.98
TPH By SW8015 Mod	<i>Extracted:</i>	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30
	<i>Analyzed:</i>	06.05.2020 10:55	06.05.2020 11:16	06.05.2020 11:36	06.05.2020 11:57	06.05.2020 10:55	06.05.2020 11:16
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<50.3 50.3	<50.2 50.2	<50.2 50.2	<49.9 49.9	<50.2 50.2	<50.0 50.0
Diesel Range Organics		<50.3 50.3	<50.2 50.2	<50.2 50.2	<49.9 49.9	<50.2 50.2	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<50.2 50.2	<50.2 50.2	<49.9 49.9	<50.2 50.2	<50.0 50.0
Total TPH		<50.3 50.3	<50.2 50.2	<50.2 50.2	<49.9 49.9	<50.2 50.2	<50.0 50.0

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

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

Jessica Kramer
Project Manager



Certificate of Analysis Summary 663532

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea, NM

Date Received in Lab: Thu 06.04.2020 16:25

Report Date: 06.05.2020 16:37

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	663532-007	663532-008	663532-009			
	Field Id:	B-17	B-18	B-19			
	Depth:	4- ft	4- ft	4- ft			
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	06.04.2020 14:12	06.04.2020 14:14	06.04.2020 14:16			
BTEX by EPA 8021B	Extracted:	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30			
	Analyzed:	06.05.2020 00:28	06.05.2020 00:48	06.05.2020 01:08			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
	Benzene	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202			
	Toluene	<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202			
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202			
m,p-Xylenes		<0.00402 0.00402	<0.00403 0.00403	<0.00403 0.00403			
o-Xylene		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202			
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202			
Total BTEX		<0.00201 0.00201	<0.00202 0.00202	<0.00202 0.00202			
Chloride by EPA 300	Extracted:	06.04.2020 17:00	06.04.2020 17:00	06.04.2020 17:00			
	Analyzed:	06.04.2020 20:54	06.04.2020 21:01	06.04.2020 21:08			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
	Chloride	111 10.0	105 10.1	105 10.0			
TPH By SW8015 Mod	Extracted:	06.04.2020 17:30	06.04.2020 17:30	06.04.2020 17:30			
	Analyzed:	06.05.2020 15:02	06.05.2020 11:57	06.05.2020 12:18			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
	Gasoline Range Hydrocarbons	<50.1 50.1	<50.2 50.2	<50.2 50.2			
	Diesel Range Organics	<50.1 50.1	<50.2 50.2	<50.2 50.2			
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<50.2 50.2	<50.2 50.2			
Total TPH		<50.1 50.1	<50.2 50.2	<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 663532

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St. 1

06.05.2020

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 (T104704221-20-17)
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)



06.05.2020

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

Reference: XENCO Report No(s): **663532**
Pygmy 27 St. 1
Project Address: Lea, 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) 663532. 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. 663532 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 663532****COG Operating LLC, Artesia, NM**

Pygmy 27 St. 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B-11	S	06.04.2020 14:00	4 ft	663532-001
B-12	S	06.04.2020 14:02	4 ft	663532-002
B-13	S	06.04.2020 14:04	4 ft	663532-003
B-14	S	06.04.2020 14:06	4 ft	663532-004
B-15	S	06.04.2020 14:08	4 ft	663532-005
B-16	S	06.04.2020 14:10	4 ft	663532-006
B-17	S	06.04.2020 14:12	4 ft	663532-007
B-18	S	06.04.2020 14:14	4 ft	663532-008
B-19	S	06.04.2020 14:16	4 ft	663532-009



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St. 1

Project ID:

Work Order Number(s): 663532

Report Date: 06.05.2020

Date Received: 06.04.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-11**
Lab Sample Id: 663532-001

Matrix: Soil
Date Collected: 06.04.2020 14:00

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	197	10.1	mg/kg	06.04.2020 19:44		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128082

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	06.05.2020 10:55	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	06.05.2020 10:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	06.05.2020 10:55	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	06.05.2020 10:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	06.05.2020 10:55	
o-Terphenyl	84-15-1	114	%	70-135	06.05.2020 10:55	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-11**
Lab Sample Id: 663532-001

Matrix: Soil
Date Collected: 06.04.2020 14:00

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Seq Number: 3128056

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 22:25	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 22:25	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 22:25	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.04.2020 22:25	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 22:25	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 22:25	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 22:25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	06.04.2020 22:25		
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.04.2020 22:25		



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-12**
Lab Sample Id: 663532-002

Matrix: Soil
Date Collected: 06.04.2020 14:02

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	183	10.1	mg/kg	06.04.2020 19:51		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128082

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 11:16	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 11:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 11:16	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 11:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	06.05.2020 11:16	
o-Terphenyl	84-15-1	117	%	70-135	06.05.2020 11:16	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-12**
Lab Sample Id: 663532-002

Matrix: Soil
Date Collected: 06.04.2020 14:02

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3128056

Prep Method: SW5035A

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.04.2020 22:46	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.04.2020 22:46	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.04.2020 22:46	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.04.2020 22:46	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.04.2020 22:46	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.04.2020 22:46	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.04.2020 22:46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	06.04.2020 22:46		
4-Bromofluorobenzene	460-00-4	99	%	70-130	06.04.2020 22:46		



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-13**
Lab Sample Id: 663532-003

Matrix: Soil
Date Collected: 06.04.2020 14:04

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	178	10.0	mg/kg	06.04.2020 19:58		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128082

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 11:36	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 11:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 11:36	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 11:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	06.05.2020 11:36	
o-Terphenyl	84-15-1	120	%	70-135	06.05.2020 11:36	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-13**
Lab Sample Id: 663532-003

Matrix: Soil
Date Collected: 06.04.2020 14:04

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Seq Number: 3128056

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.04.2020 23:06	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.04.2020 23:06	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.04.2020 23:06	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.04.2020 23:06	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.04.2020 23:06	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.04.2020 23:06	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.04.2020 23:06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.04.2020 23:06		
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.04.2020 23:06		



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-14**
Lab Sample Id: 663532-004

Matrix: Soil
Date Collected: 06.04.2020 14:06

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	191	10.0	mg/kg	06.04.2020 20:05		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128082

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	06.05.2020 11:57	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	06.05.2020 11:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.05.2020 11:57	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.05.2020 11:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	06.05.2020 11:57	
o-Terphenyl	84-15-1	118	%	70-135	06.05.2020 11:57	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-14**
Lab Sample Id: 663532-004

Matrix: Soil
Date Collected: 06.04.2020 14:06

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3128056

Prep Method: SW5035A

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.04.2020 23:26	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.04.2020 23:26	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.04.2020 23:26	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.04.2020 23:26	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.04.2020 23:26	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.04.2020 23:26	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.04.2020 23:26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	06.04.2020 23:26		
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.04.2020 23:26		



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-15**
Lab Sample Id: 663532-005

Matrix: Soil
Date Collected: 06.04.2020 14:08

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	106	10.0	mg/kg	06.04.2020 20:12		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128108

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 10:55	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 10:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 10:55	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 10:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	126	%	70-135	06.05.2020 10:55	
o-Terphenyl	84-15-1	119	%	70-135	06.05.2020 10:55	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-15**
Lab Sample Id: 663532-005

Matrix: Soil
Date Collected: 06.04.2020 14:08

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3128056

Prep Method: SW5035A

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.04.2020 23:47	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.04.2020 23:47	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.04.2020 23:47	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	06.04.2020 23:47	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.04.2020 23:47	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.04.2020 23:47	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.04.2020 23:47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	06.04.2020 23:47		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.04.2020 23:47		



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-16**
Lab Sample Id: 663532-006

Matrix: Soil
Date Collected: 06.04.2020 14:10

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	108	9.98	mg/kg	06.04.2020 20:19		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128108

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	06.05.2020 11:16	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	06.05.2020 11:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.05.2020 11:16	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.05.2020 11:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	06.05.2020 11:16	
o-Terphenyl	84-15-1	106	%	70-135	06.05.2020 11:16	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-16**
Lab Sample Id: 663532-006

Matrix: Soil
Date Collected: 06.04.2020 14:10

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3128056

Prep Method: SW5035A

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.05.2020 00:07	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.05.2020 00:07	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.05.2020 00:07	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.05.2020 00:07	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.05.2020 00:07	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.05.2020 00:07	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.05.2020 00:07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.05.2020 00:07		
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.05.2020 00:07		



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-17**
Lab Sample Id: 663532-007

Matrix: Soil
Date Collected: 06.04.2020 14:12

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	111	10.0	mg/kg	06.04.2020 20:54		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128108

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	06.05.2020 15:02	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	06.05.2020 15:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	06.05.2020 15:02	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	06.05.2020 15:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	06.05.2020 15:02	
o-Terphenyl	84-15-1	87	%	70-135	06.05.2020 15:02	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-17**
Lab Sample Id: 663532-007

Matrix: Soil
Date Collected: 06.04.2020 14:12

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Seq Number: 3128056

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.05.2020 00:28	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.05.2020 00:28	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.05.2020 00:28	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.05.2020 00:28	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.05.2020 00:28	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.05.2020 00:28	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.05.2020 00:28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.05.2020 00:28		
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.05.2020 00:28		



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-18**
Lab Sample Id: 663532-008

Matrix: Soil
Date Collected: 06.04.2020 14:14

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128048

Date Prep: 06.04.2020 17:00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	105	10.1	mg/kg	06.04.2020 21:01		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128108

Date Prep: 06.04.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 11:57	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 11:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 11:57	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 11:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	06.05.2020 11:57	
o-Terphenyl	84-15-1	118	%	70-135	06.05.2020 11:57	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-18**
Lab Sample Id: 663532-008

Matrix: Soil
Date Collected: 06.04.2020 14:14

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3128056

Prep Method: SW5035A

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.05.2020 00:48	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.05.2020 00:48	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.05.2020 00:48	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.05.2020 00:48	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.05.2020 00:48	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.05.2020 00:48	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.05.2020 00:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.05.2020 00:48	
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.05.2020 00:48	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-19** Matrix: Soil Date Received: 06.04.2020 16:25
 Lab Sample Id: 663532-009 Date Collected: 06.04.2020 14:16 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.04.2020 17:00 Basis: Wet Weight
 Seq Number: 3128048

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	105	10.0	mg/kg	06.04.2020 21:08		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.04.2020 17:30 Basis: Wet Weight
 Seq Number: 3128108

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.05.2020 12:18	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.05.2020 12:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.05.2020 12:18	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.05.2020 12:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	135	%	70-135	06.05.2020 12:18	
o-Terphenyl	84-15-1	118	%	70-135	06.05.2020 12:18	



Certificate of Analytical Results 663532

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-19**
Lab Sample Id: 663532-009

Matrix: Soil
Date Collected: 06.04.2020 14:16

Date Received: 06.04.2020 16:25
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: MAB

Analyst: MAB

Seq Number: 3128056

Prep Method: SW5035A

% Moisture:

Date Prep: 06.04.2020 17:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.05.2020 01:08	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.05.2020 01:08	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.05.2020 01:08	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.05.2020 01:08	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.05.2020 01:08	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.05.2020 01:08	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.05.2020 01:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.05.2020 01:08		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.05.2020 01:08		



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

Pygmy 27 St. 1

Analytical Method: Chloride by EPA 300

Seq Number: 3128048

MB Sample Id: 7704822-1-BLK

Matrix: Solid

LCS Sample Id: 7704822-1-BKS

Prep Method: E300P

Date Prep: 06.04.2020

LCSD Sample Id: 7704822-1-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	252	101	90-110	0	20	mg/kg	06.04.2020 18:06	

Analytical Method: Chloride by EPA 300

Seq Number: 3128048

Parent Sample Id: 663487-001

Matrix: Soil

MS Sample Id: 663487-001 S

Prep Method: E300P

Date Prep: 06.04.2020

MSD Sample Id: 663487-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	126	200	319	97	319	97	90-110	0	20	mg/kg	06.04.2020 18:27	

Analytical Method: Chloride by EPA 300

Seq Number: 3128048

Parent Sample Id: 663532-006

Matrix: Soil

MS Sample Id: 663532-006 S

Prep Method: E300P

Date Prep: 06.04.2020

MSD Sample Id: 663532-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	108	199	294	93	292	93	90-110	1	20	mg/kg	06.04.2020 20:26	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128082

MB Sample Id: 7704842-1-BLK

Matrix: Solid

LCS Sample Id: 7704842-1-BKS

Prep Method: SW8015P

Date Prep: 06.04.2020

LCSD Sample Id: 7704842-1-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	916	92	921	92	70-135	1	35	mg/kg	06.04.2020 14:13	
Diesel Range Organics	<50.0	1000	997	100	985	99	70-135	1	35	mg/kg	06.04.2020 14:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		111		110		70-135	%	06.04.2020 14:13
o-Terphenyl	112		121		106		70-135	%	06.04.2020 14:13

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128108

MB Sample Id: 7704860-1-BLK

Matrix: Solid

LCS Sample Id: 7704860-1-BKS

Prep Method: SW8015P

Date Prep: 06.04.2020

LCSD Sample Id: 7704860-1-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	992	99	1020	102	70-135	3	35	mg/kg	06.04.2020 17:22	
Diesel Range Organics	<50.0	1000	1130	113	1100	110	70-135	3	35	mg/kg	06.04.2020 17:22	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		118		122		70-135	%	06.04.2020 17:22
o-Terphenyl	96		106		111		70-135	%	06.04.2020 17:22

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

Pygmy 27 St. 1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128082

Matrix: Solid

Prep Method: SW8015P

Date Prep: 06.04.2020

MB Sample Id: 7704842-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

MB
Result

<50.0

Units

mg/kg

Analysis
Date

06.04.2020 13:52

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128108

Matrix: Solid

Prep Method: SW8015P

Date Prep: 06.04.2020

MB Sample Id: 7704860-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

MB
Result

<50.0

Units

mg/kg

Analysis
Date

06.04.2020 13:52

Flag

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128082

Matrix: Soil

Prep Method: SW8015P

Date Prep: 06.04.2020

Parent Sample Id: 663490-002

MS Sample Id: 663490-002 S

MSD Sample Id: 663490-002 SD

Parameter

Gasoline Range Hydrocarbons

Parent
Result

<49.9

Spike
Amount

998

MS
Result

1090

MS
%Rec

109

MSD
Result

1100

MSD
%Rec

110

Limits

70-135

%RPD

1

RPD
Limit

35

Units

mg/kg

Analysis
Date

06.04.2020 15:17

Flag

Diesel Range Organics

<49.9

998

1270

127

1260

126

70-135

1

35

mg/kg

06.04.2020 15:17

Surrogate

1-Chlorooctane

MS
%Rec

120

MS
FlagMSD
%Rec

122

MSD
Flag

Limits

70-135

Units

%

Analysis
Date

06.04.2020 15:17

o-Terphenyl

114

117

70-135

%

06.04.2020 15:17

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128108

Matrix: Soil

Prep Method: SW8015P

Date Prep: 06.04.2020

Parent Sample Id: 663490-001

MS Sample Id: 663490-001 S

MSD Sample Id: 663490-001 SD

Parameter

Gasoline Range Hydrocarbons

Parent
Result

<50.2

Spike
Amount

1000

MS
Result

1260

MS
%Rec

126

MSD
Result

1300

MSD
%Rec

130

Limits

70-135

%RPD

3

RPD
Limit

35

Units

mg/kg

Analysis
Date

06.05.2020 10:14

Flag

Diesel Range Organics

<50.2

1000

1150

115

1190

119

70-135

3

35

mg/kg

06.05.2020 10:14

Surrogate

1-Chlorooctane

MS
%Rec

130

MS
FlagMSD
%Rec

126

MSD
Flag

Limits

70-135

Units

%

Analysis
Date

06.05.2020 10:14

o-Terphenyl

117

123

70-135

%

06.05.2020 10:14

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

Pygmy 27 St. 1

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128056

MB Sample Id: 7704782-1-BLK

Matrix: Solid

LCS Sample Id: 7704782-1-BKS

Prep Method: SW5035A

Date Prep: 06.04.2020

LCSD Sample Id: 7704782-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.111	111	0.119	119	70-130	7	35	mg/kg	06.04.2020 15:17	
Toluene	<0.00200	0.100	0.104	104	0.113	113	70-130	8	35	mg/kg	06.04.2020 15:17	
Ethylbenzene	<0.00200	0.100	0.0981	98	0.105	105	71-129	7	35	mg/kg	06.04.2020 15:17	
m,p-Xylenes	<0.00400	0.200	0.198	99	0.217	109	70-135	9	35	mg/kg	06.04.2020 15:17	
o-Xylene	<0.00200	0.100	0.102	102	0.109	109	71-133	7	35	mg/kg	06.04.2020 15:17	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		106		106		70-130	%	06.04.2020 15:17
4-Bromofluorobenzene	94		89		90		70-130	%	06.04.2020 15:17

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128056

Parent Sample Id: 663406-002

Matrix: Soil

MS Sample Id: 663406-002 S

Prep Method: SW5035A

Date Prep: 06.04.2020

MSD Sample Id: 663406-002 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	0.120	120	0.128	128	70-130	6	35	mg/kg	06.04.2020 15:58	
Toluene	<0.00200	0.0998	0.113	113	0.121	121	70-130	7	35	mg/kg	06.04.2020 15:58	
Ethylbenzene	<0.00200	0.0998	0.106	106	0.114	114	71-129	7	35	mg/kg	06.04.2020 15:58	
m,p-Xylenes	<0.00399	0.200	0.214	107	0.231	115	70-135	8	35	mg/kg	06.04.2020 15:58	
o-Xylene	<0.00200	0.0998	0.107	107	0.116	116	71-133	8	35	mg/kg	06.04.2020 15:58	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		108		70-130	%	06.04.2020 15:58
4-Bromofluorobenzene	91		95		70-130	%	06.04.2020 15:58

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



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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) 689-6700

Work Order No: 200735

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Chain of Custody

Project Manager:	Shelton	Bill to: (if different)	
Company Name:	COG	Company Name:	
Address:		Address:	
City, State ZIP:		City, State ZIP:	
Phone:		Email:	

Work Order Comments
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project: Reporting Level I <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Information				Turn Around		ANALYSIS REQUEST										Preservative Codes							
Project Name:		PY9257 27 54.1		Routine <input type="checkbox"/>												MeOH: Me							
Project Number:				Rush: 24 hr												None: NO							
Project Location:				Due Date: 6/5												HNO3: HN							
Sampler's Name:				Quote #:												H2SO4: H2							
PO #:																HCL: HL							
SAMPLE RECEIPT				Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												NaOH: Na					
Temperature (°C):		4.2		Thermometer ID												Zn Acetate+ NaOH: Zn							
Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Correction Factor:												TAT starts the day received by the lab, if received by 4:00pm							
Cooler Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Total Containers:																			
Sample Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		9																			
Lab ID		Sample Identification		Matrix		Date Sampled		Time Sampled		Depth		Number of Containers		Sample Comments									
B-11		5		6/4/20		2:00		4'		1		TPH											
B-12		5		6/4/20		2:02		4'		1		BTEx											
B-13		5		6/4/20		2:04		4'		1		Chlorides											
B-14		5		6/4/20		2:06		4'		1													
B-15		5		6/4/20		2:08		4'		1													
B-16		5		6/4/20		2:10		4'		1													
B-17		5		6/4/20		2:12		4'		1													
B-18		5		6/4/20		2:14		4'		1													
B-19		5		6/4/20		2:16		4'		1													

Total 200.7 / 6010	200.8 6020:	
<i>Circle Method(s) and Metal(s) to be analyzed</i>	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
<i>Shirley P. ...</i>	<i>[Signature]</i>	4/14/20 10:25			
		2			
		4			
		5			

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 06.04.2020 04.25.00 PM**Work Order #:** 663532**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

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: 06.04.2020

Checklist reviewed by:

Jessica Kramer

Date: 06.05.2020



Certificate of Analysis Summary 663802

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Date Received in Lab: Tue 06.09.2020 07:45

Contact: Sheldon Hitchcock

Report Date: 06.10.2020 15:53

Project Location: Lea, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663802-001	663802-002	663802-003	663802-004	663802-005	663802-006
	<i>Field Id:</i>	B- 20	B- 21	B- 22	B- 23	B- 24	B- 25
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	06.08.2020 14:30	06.08.2020 14:32	06.08.2020 14:34	06.08.2020 14:36	06.08.2020 14:38	06.08.2020 14:40
BTEX by EPA 8021B	<i>Extracted:</i>	06.09.2020 13:30	06.09.2020 13:30	06.09.2020 13:30	06.09.2020 13:30	06.09.2020 13:30	06.09.2020 13:30
	<i>Analyzed:</i>	06.09.2020 13:50	06.09.2020 14:10	06.09.2020 14:31	06.09.2020 14:51	06.09.2020 15:12	06.09.2020 15:32
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Toluene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
m,p-Xylenes		<0.00403 0.00403	<0.00403 0.00403	<0.00403 0.00403	<0.00400 0.00400	<0.00399 0.00399	<0.00403 0.00403
o-Xylene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Total Xylenes		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Total BTEX		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	06.09.2020 11:00	06.09.2020 11:00	06.09.2020 11:00	06.09.2020 11:00	06.09.2020 11:00	06.09.2020 11:00
	<i>Analyzed:</i>	06.09.2020 12:02	06.09.2020 12:19	06.09.2020 12:25	06.09.2020 12:31	06.09.2020 12:36	06.09.2020 12:54
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		205 10.0	206 9.96	208 10.1	208 10.1	573 10.1	417 10.1
TPH By SW8015 Mod	<i>Extracted:</i>	06.09.2020 10:30	06.09.2020 10:30	06.09.2020 10:30	06.09.2020 10:30	06.09.2020 10:30	06.09.2020 10:30
	<i>Analyzed:</i>	06.09.2020 12:28	06.09.2020 13:30	06.09.2020 13:51	06.09.2020 14:11	06.09.2020 14:32	06.09.2020 14:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons		<50.3 50.3	<50.2 50.2	<50.2 50.2	<50.2 50.2	<49.8 49.8	<50.2 50.2
Diesel Range Organics		<50.3 50.3	<50.2 50.2	<50.2 50.2	<50.2 50.2	<49.8 49.8	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<50.2 50.2	<50.2 50.2	<50.2 50.2	<49.8 49.8	<50.2 50.2
Total TPH		<50.3 50.3	<50.2 50.2	<50.2 50.2	<50.2 50.2	<49.8 49.8	<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 663802

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea, NM

Date Received in Lab: Tue 06.09.2020 07:45

Report Date: 06.10.2020 15:53

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	663802-007	663802-008				
	Field Id:	B- 26	B- 27				
	Depth:						
	Matrix:	SOIL	SOIL				
	Sampled:	06.08.2020 14:42	06.08.2020 14:44				
BTEX by EPA 8021B	Extracted:	06.09.2020 13:30	06.09.2020 13:30				
	Analyzed:	06.09.2020 15:53	** ** *				
	Units/RL:	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				
Chloride by EPA 300	Extracted:	06.09.2020 11:00	06.09.2020 11:00				
	Analyzed:	06.09.2020 12:59	06.09.2020 13:05				
	Units/RL:	mg/kg RL	mg/kg RL				
	Chloride	215 9.98	238 9.92				
TPH By SW8015 Mod	Extracted:	06.09.2020 10:30	06.09.2020 10:30				
	Analyzed:	06.09.2020 15:13	06.09.2020 15:33				
	Units/RL:	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons	<50.1 50.1	<50.1 50.1				
	Diesel Range Organics	<50.1 50.1	<50.1 50.1				
	Motor Oil Range Hydrocarbons (MRO)	<50.1 50.1	<50.1 50.1				
	Total TPH	<50.1 50.1	<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 663802

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St. 1

06.10.2020

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 (T104704221-20-17)
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)



06.10.2020

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

Reference: XENCO Report No(s): **663802**
Pygmy 27 St. 1
Project Address: Lea, 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) 663802. 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. 663802 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 663802****COG Operating LLC, Artesia, NM**

Pygmy 27 St. 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B- 20	S	06.08.2020 14:30		663802-001
B- 21	S	06.08.2020 14:32		663802-002
B- 22	S	06.08.2020 14:34		663802-003
B- 23	S	06.08.2020 14:36		663802-004
B- 24	S	06.08.2020 14:38		663802-005
B- 25	S	06.08.2020 14:40		663802-006
B- 26	S	06.08.2020 14:42		663802-007
B- 27	S	06.08.2020 14:44		663802-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St. 1

Project ID:
Work Order Number(s): 663802

Report Date: 06.10.2020
Date Received: 06.09.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 20**
Lab Sample Id: 663802-001

Matrix: Soil
Date Collected: 06.08.2020 14:30

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	205	10.0	mg/kg	06.09.2020 12:02		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	06.09.2020 12:28	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	06.09.2020 12:28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	06.09.2020 12:28	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	06.09.2020 12:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-135	06.09.2020 12:28	
o-Terphenyl	84-15-1	109	%	70-135	06.09.2020 12:28	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 20**
Lab Sample Id: 663802-001

Matrix: Soil
Date Collected: 06.08.2020 14:30

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.09.2020 13:50	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.09.2020 13:50	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.09.2020 13:50	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.09.2020 13:50	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.09.2020 13:50	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.09.2020 13:50	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.09.2020 13:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.09.2020 13:50	
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.09.2020 13:50	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 21**
Lab Sample Id: 663802-002

Matrix: Soil
Date Collected: 06.08.2020 14:32

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	206	9.96	mg/kg	06.09.2020 12:19		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.09.2020 13:30	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.09.2020 13:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.09.2020 13:30	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.09.2020 13:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	06.09.2020 13:30	
o-Terphenyl	84-15-1	105	%	70-135	06.09.2020 13:30	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 21**
Lab Sample Id: 663802-002

Matrix: Soil
Date Collected: 06.08.2020 14:32

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.09.2020 14:10	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.09.2020 14:10	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.09.2020 14:10	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.09.2020 14:10	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.09.2020 14:10	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.09.2020 14:10	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.09.2020 14:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95	%	70-130	06.09.2020 14:10	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.09.2020 14:10	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 22**
Lab Sample Id: 663802-003

Matrix: Soil
Date Collected: 06.08.2020 14:34

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	208	10.1	mg/kg	06.09.2020 12:25		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.09.2020 13:51	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.09.2020 13:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.09.2020 13:51	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.09.2020 13:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	06.09.2020 13:51	
o-Terphenyl	84-15-1	103	%	70-135	06.09.2020 13:51	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 22**
Lab Sample Id: 663802-003

Matrix: Soil
Date Collected: 06.08.2020 14:34

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.09.2020 14:31	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.09.2020 14:31	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.09.2020 14:31	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.09.2020 14:31	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.09.2020 14:31	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.09.2020 14:31	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.09.2020 14:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.09.2020 14:31	
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.09.2020 14:31	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 23**
Lab Sample Id: 663802-004

Matrix: Soil
Date Collected: 06.08.2020 14:36

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	208	10.1	mg/kg	06.09.2020 12:31		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.09.2020 14:11	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.09.2020 14:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.09.2020 14:11	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.09.2020 14:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	06.09.2020 14:11	
o-Terphenyl	84-15-1	101	%	70-135	06.09.2020 14:11	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 23**
Lab Sample Id: 663802-004

Matrix: Soil
Date Collected: 06.08.2020 14:36

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.09.2020 14:51	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.09.2020 14:51	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.09.2020 14:51	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.09.2020 14:51	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.09.2020 14:51	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.09.2020 14:51	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.09.2020 14:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.09.2020 14:51	
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.09.2020 14:51	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 24**
Lab Sample Id: 663802-005

Matrix: Soil
Date Collected: 06.08.2020 14:38

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	573	10.1	mg/kg	06.09.2020 12:36		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	06.09.2020 14:32	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	06.09.2020 14:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.09.2020 14:32	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.09.2020 14:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	06.09.2020 14:32	
o-Terphenyl	84-15-1	102	%	70-135	06.09.2020 14:32	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 24**
Lab Sample Id: 663802-005

Matrix: Soil
Date Collected: 06.08.2020 14:38

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.09.2020 15:12	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.09.2020 15:12	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.09.2020 15:12	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.09.2020 15:12	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.09.2020 15:12	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.09.2020 15:12	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.09.2020 15:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	06.09.2020 15:12	
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.09.2020 15:12	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 25**
Lab Sample Id: 663802-006

Matrix: Soil
Date Collected: 06.08.2020 14:40

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	417	10.1	mg/kg	06.09.2020 12:54		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.09.2020 14:52	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.09.2020 14:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.09.2020 14:52	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.09.2020 14:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	06.09.2020 14:52	
o-Terphenyl	84-15-1	101	%	70-135	06.09.2020 14:52	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 25**
Lab Sample Id: 663802-006

Matrix: Soil
Date Collected: 06.08.2020 14:40

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.09.2020 15:32	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.09.2020 15:32	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.09.2020 15:32	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.09.2020 15:32	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.09.2020 15:32	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.09.2020 15:32	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.09.2020 15:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.09.2020 15:32	
1,4-Difluorobenzene	540-36-3	108	%	70-130	06.09.2020 15:32	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 26**
Lab Sample Id: 663802-007

Matrix: Soil
Date Collected: 06.08.2020 14:42

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	215	9.98	mg/kg	06.09.2020 12:59		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	06.09.2020 15:13	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	06.09.2020 15:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	06.09.2020 15:13	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	06.09.2020 15:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	06.09.2020 15:13	
o-Terphenyl	84-15-1	103	%	70-135	06.09.2020 15:13	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 26**
Lab Sample Id: 663802-007

Matrix: Soil
Date Collected: 06.08.2020 14:42

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.09.2020 15:53	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.09.2020 15:53	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.09.2020 15:53	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.09.2020 15:53	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.09.2020 15:53	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.09.2020 15:53	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.09.2020 15:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.09.2020 15:53	
4-Bromofluorobenzene	460-00-4	99	%	70-130	06.09.2020 15:53	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 27**
Lab Sample Id: 663802-008

Matrix: Soil
Date Collected: 06.08.2020 14:44

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	238	9.92	mg/kg	06.09.2020 13:05		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	06.09.2020 15:33	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	06.09.2020 15:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	06.09.2020 15:33	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	06.09.2020 15:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	06.09.2020 15:33	
o-Terphenyl	84-15-1	105	%	70-135	06.09.2020 15:33	



Certificate of Analytical Results 663802

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B- 27**
Lab Sample Id: 663802-008

Matrix: Soil
Date Collected: 06.08.2020 14:44

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.09.2020 13:29	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.09.2020 13:29	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.09.2020 13:29	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.09.2020 13:29	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.09.2020 13:29	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.09.2020 13:29	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.09.2020 13:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100	%	70-130	06.09.2020 13:29	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.09.2020 13:29	



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

Pygmy 27 St. 1

Analytical Method: Chloride by EPA 300

Seq Number: 3128439

MB Sample Id: 7705093-1-BLK

Matrix: Solid

LCS Sample Id: 7705093-1-BKS

Prep Method: E300P

Date Prep: 06.09.2020

LCSD Sample Id: 7705093-1-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	253	101	90-110	1	20	mg/kg	06.09.2020 11:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3128439

Parent Sample Id: 663802-001

Matrix: Soil

MS Sample Id: 663802-001 S

Prep Method: E300P

Date Prep: 06.09.2020

MSD Sample Id: 663802-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	205	201	387	91	388	91	90-110	0	20	mg/kg	06.09.2020 12:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3128439

Parent Sample Id: 663803-003

Matrix: Soil

MS Sample Id: 663803-003 S

Prep Method: E300P

Date Prep: 06.09.2020

MSD Sample Id: 663803-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	66.8	200	257	95	257	95	90-110	0	20	mg/kg	06.09.2020 13:28	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128404

MB Sample Id: 7705057-1-BLK

Matrix: Solid

LCS Sample Id: 7705057-1-BKS

Prep Method: SW8015P

Date Prep: 06.09.2020

LCSD Sample Id: 7705057-1-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	1090	109	1080	108	70-135	1	35	mg/kg	06.09.2020 11:47	
Diesel Range Organics	<50.0	1000	1080	108	1060	106	70-135	2	35	mg/kg	06.09.2020 11:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		115		129		70-135	%	06.09.2020 11:47
o-Terphenyl	92		96		94		70-135	%	06.09.2020 11:47

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128404

Matrix: Solid

MB Sample Id: 7705057-1-BLK

Prep Method: SW8015P

Date Prep: 06.09.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.09.2020 11:27	

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

Pygmy 27 St. 1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128404

Parent Sample Id: 663802-001

Matrix: Soil

MS Sample Id: 663802-001 S

Prep Method: SW8015P

Date Prep: 06.09.2020

MSD Sample Id: 663802-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.1	1000	1060	106	1080	108	70-135	2	35	mg/kg	06.09.2020 12:49	
Diesel Range Organics	<50.1	1000	1050	105	1090	109	70-135	4	35	mg/kg	06.09.2020 12:49	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	128		133		70-135	%	06.09.2020 12:49
o-Terphenyl	107		114		70-135	%	06.09.2020 12:49

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128511

MB Sample Id: 7705083-1-BLK

Matrix: Solid

LCS Sample Id: 7705083-1-BKS

Prep Method: SW5035A

Date Prep: 06.09.2020

LCSD Sample Id: 7705083-1-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	0.107	107	70-130	0	35	mg/kg	06.09.2020 11:27	
Toluene	<0.00200	0.100	0.100	100	0.101	101	70-130	1	35	mg/kg	06.09.2020 11:27	
Ethylbenzene	<0.00200	0.100	0.0932	93	0.0944	94	71-129	1	35	mg/kg	06.09.2020 11:27	
m,p-Xylenes	<0.00400	0.200	0.191	96	0.194	97	70-135	2	35	mg/kg	06.09.2020 11:27	
o-Xylene	<0.00200	0.100	0.0980	98	0.0992	99	71-133	1	35	mg/kg	06.09.2020 11:27	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		105		107		70-130	%	06.09.2020 11:27
4-Bromofluorobenzene	95		91		92		70-130	%	06.09.2020 11:27

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128511

Parent Sample Id: 663802-001

Matrix: Soil

MS Sample Id: 663802-001 S

Prep Method: SW5035A

Date Prep: 06.09.2020

MSD Sample Id: 663802-001 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	0.0917	92	0.112	112	70-130	20	35	mg/kg	06.09.2020 12:49	
Toluene	<0.00200	0.100	0.0875	88	0.106	106	70-130	19	35	mg/kg	06.09.2020 12:49	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.101	101	71-129	20	35	mg/kg	06.09.2020 12:49	
m,p-Xylenes	<0.00401	0.200	0.173	87	0.208	104	70-135	18	35	mg/kg	06.09.2020 12:49	
o-Xylene	<0.00200	0.100	0.0851	85	0.103	103	71-133	19	35	mg/kg	06.09.2020 12:49	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		108		70-130	%	06.09.2020 12:49
4-Bromofluorobenzene	96		92		70-130	%	06.09.2020 12:49

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

663802

[illegible]

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 06.09.2020 07.45.00 AM

Work Order #: 663802

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
#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: 06.09.2020

Checklist reviewed by:



Jessica Kramer

Date: 06.10.2020



Certificate of Analysis Summary 663803

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea, NM

Date Received in Lab: Tue 06.09.2020 07:45

Report Date: 06.10.2020 15:54

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663803-001	663803-002	663803-003	663803-004		
	<i>Field Id:</i>	SW-7	SW-8	SW-9	SW-10		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	06.08.2020 15:00	06.08.2020 15:04	06.08.2020 15:08	06.08.2020 15:15		
BTEX by EPA 8021B	<i>Extracted:</i>	06.09.2020 13:30	06.09.2020 13:30	06.09.2020 13:30	06.09.2020 13:30		
	<i>Analyzed:</i>	06.09.2020 16:33	06.09.2020 16:54	06.09.2020 17:55	06.09.2020 18:16		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Toluene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Ethylbenzene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
m,p-Xylenes		<0.00402 0.00402	<0.00402 0.00402	<0.00398 0.00398	<0.00402 0.00402		
o-Xylene		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Total Xylenes		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Total BTEX		<0.00201 0.00201	<0.00201 0.00201	<0.00199 0.00199	<0.00201 0.00201		
Chloride by EPA 300	<i>Extracted:</i>	06.09.2020 11:00	06.09.2020 11:00	06.09.2020 11:00	06.09.2020 11:00		
	<i>Analyzed:</i>	06.09.2020 13:11	06.09.2020 13:17	06.09.2020 13:23	06.09.2020 13:40		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		88.0 10.0	107 10.1	66.8 9.96	88.0 9.94		
TPH By SW8015 Mod	<i>Extracted:</i>	06.09.2020 10:30	06.09.2020 10:30	06.09.2020 10:30	06.09.2020 10:30		
	<i>Analyzed:</i>	06.09.2020 15:54	06.09.2020 16:15	06.09.2020 16:56	06.09.2020 17:16		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons		<50.3 50.3	<50.2 50.2	<50.1 50.1	<50.2 50.2		
Diesel Range Organics		<50.3 50.3	<50.2 50.2	<50.1 50.1	<50.2 50.2		
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<50.2 50.2	<50.1 50.1	<50.2 50.2		
Total TPH		<50.3 50.3	<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



Analytical Report 663803

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St. 1

06.10.2020

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 (T104704221-20-17)
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)



06.10.2020

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **663803**

Pygmy 27 St. 1

Project Address: Lea, 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) 663803. 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. 663803 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 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-7	S	06.08.2020 15:00		663803-001
SW-8	S	06.08.2020 15:04		663803-002
SW-9	S	06.08.2020 15:08		663803-003
SW-10	S	06.08.2020 15:15		663803-004



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St. 1

Project ID:
Work Order Number(s): 663803

Report Date: 06.10.2020
Date Received: 06.09.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-7**
Lab Sample Id: 663803-001

Matrix: Soil
Date Collected: 06.08.2020 15:00

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	88.0	10.0	mg/kg	06.09.2020 13:11		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.3	50.3	mg/kg	06.09.2020 15:54	U	1
Diesel Range Organics	C10C28DRO	<50.3	50.3	mg/kg	06.09.2020 15:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	06.09.2020 15:54	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	06.09.2020 15:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	06.09.2020 15:54	
o-Terphenyl	84-15-1	103	%	70-135	06.09.2020 15:54	



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-7**
Lab Sample Id: 663803-001

Matrix: Soil
Date Collected: 06.08.2020 15:00

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.09.2020 16:33	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.09.2020 16:33	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.09.2020 16:33	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.09.2020 16:33	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.09.2020 16:33	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.09.2020 16:33	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.09.2020 16:33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.09.2020 16:33		
4-Bromofluorobenzene	460-00-4	99	%	70-130	06.09.2020 16:33		



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-8**
Lab Sample Id: 663803-002

Matrix: Soil
Date Collected: 06.08.2020 15:04

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	107	10.1	mg/kg	06.09.2020 13:17		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.09.2020 16:15	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.09.2020 16:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.09.2020 16:15	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.09.2020 16:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	06.09.2020 16:15	
o-Terphenyl	84-15-1	104	%	70-135	06.09.2020 16:15	



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-8**
Lab Sample Id: 663803-002

Matrix: Soil
Date Collected: 06.08.2020 15:04

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.09.2020 16:54	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.09.2020 16:54	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.09.2020 16:54	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.09.2020 16:54	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.09.2020 16:54	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.09.2020 16:54	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.09.2020 16:54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	06.09.2020 16:54		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.09.2020 16:54		



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-9**
Lab Sample Id: 663803-003

Matrix: Soil
Date Collected: 06.08.2020 15:08

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	66.8	9.96	mg/kg	06.09.2020 13:23		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.1	50.1	mg/kg	06.09.2020 16:56	U	1
Diesel Range Organics	C10C28DRO	<50.1	50.1	mg/kg	06.09.2020 16:56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	06.09.2020 16:56	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	06.09.2020 16:56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	06.09.2020 16:56	
o-Terphenyl	84-15-1	102	%	70-135	06.09.2020 16:56	



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-9**
Lab Sample Id: 663803-003

Matrix: Soil
Date Collected: 06.08.2020 15:08

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.09.2020 17:55	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.09.2020 17:55	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.09.2020 17:55	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.09.2020 17:55	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.09.2020 17:55	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.09.2020 17:55	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.09.2020 17:55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.09.2020 17:55		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.09.2020 17:55		



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-10**
Lab Sample Id: 663803-004

Matrix: Soil
Date Collected: 06.08.2020 15:15

Date Received: 06.09.2020 07:45

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128439

Prep Method: E300P

% Moisture:

Date Prep: 06.09.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	88.0	9.94	mg/kg	06.09.2020 13:40		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128404

Prep Method: SW8015P

% Moisture:

Date Prep: 06.09.2020 10:30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.09.2020 17:16	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.09.2020 17:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.09.2020 17:16	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.09.2020 17:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	06.09.2020 17:16	
o-Terphenyl	84-15-1	105	%	70-135	06.09.2020 17:16	



Certificate of Analytical Results 663803

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **SW-10**
Lab Sample Id: 663803-004

Matrix: Soil
Date Collected: 06.08.2020 15:15

Date Received: 06.09.2020 07:45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.09.2020 13:30

Basis: Wet Weight

Seq Number: 3128511

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.09.2020 18:16	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.09.2020 18:16	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.09.2020 18:16	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.09.2020 18:16	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.09.2020 18:16	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.09.2020 18:16	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.09.2020 18:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.09.2020 18:16	
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.09.2020 18:16	



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

Pygmy 27 St. 1

Analytical Method: Chloride by EPA 300

Seq Number: 3128439

MB Sample Id: 7705093-1-BLK

Matrix: Solid

LCS Sample Id: 7705093-1-BKS

Prep Method: E300P

Date Prep: 06.09.2020

LCSD Sample Id: 7705093-1-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	253	101	90-110	1	20	mg/kg	06.09.2020 11:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3128439

Parent Sample Id: 663802-001

Matrix: Soil

MS Sample Id: 663802-001 S

Prep Method: E300P

Date Prep: 06.09.2020

MSD Sample Id: 663802-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	205	201	387	91	388	91	90-110	0	20	mg/kg	06.09.2020 12:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3128439

Parent Sample Id: 663803-003

Matrix: Soil

MS Sample Id: 663803-003 S

Prep Method: E300P

Date Prep: 06.09.2020

MSD Sample Id: 663803-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	66.8	200	257	95	257	95	90-110	0	20	mg/kg	06.09.2020 13:28	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128404

MB Sample Id: 7705057-1-BLK

Matrix: Solid

LCS Sample Id: 7705057-1-BKS

Prep Method: SW8015P

Date Prep: 06.09.2020

LCSD Sample Id: 7705057-1-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	1090	109	1080	108	70-135	1	35	mg/kg	06.09.2020 11:47	
Diesel Range Organics	<50.0	1000	1080	108	1060	106	70-135	2	35	mg/kg	06.09.2020 11:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		115		129		70-135	%	06.09.2020 11:47
o-Terphenyl	92		96		94		70-135	%	06.09.2020 11:47

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128404

Matrix: Solid

MB Sample Id: 7705057-1-BLK

Prep Method: SW8015P

Date Prep: 06.09.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.09.2020 11:27	

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

Pygmy 27 St. 1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128404

Parent Sample Id: 663802-001

Matrix: Soil

MS Sample Id: 663802-001 S

Prep Method: SW8015P

Date Prep: 06.09.2020

MSD Sample Id: 663802-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.1	1000	1060	106	1080	108	70-135	2	35	mg/kg	06.09.2020 12:49	
Diesel Range Organics	<50.1	1000	1050	105	1090	109	70-135	4	35	mg/kg	06.09.2020 12:49	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	128		133		70-135	%	06.09.2020 12:49
o-Terphenyl	107		114		70-135	%	06.09.2020 12:49

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128511

MB Sample Id: 7705083-1-BLK

Matrix: Solid

LCS Sample Id: 7705083-1-BKS

Prep Method: SW5035A

Date Prep: 06.09.2020

LCSD Sample Id: 7705083-1-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	0.107	107	70-130	0	35	mg/kg	06.09.2020 11:27	
Toluene	<0.00200	0.100	0.100	100	0.101	101	70-130	1	35	mg/kg	06.09.2020 11:27	
Ethylbenzene	<0.00200	0.100	0.0932	93	0.0944	94	71-129	1	35	mg/kg	06.09.2020 11:27	
m,p-Xylenes	<0.00400	0.200	0.191	96	0.194	97	70-135	2	35	mg/kg	06.09.2020 11:27	
o-Xylene	<0.00200	0.100	0.0980	98	0.0992	99	71-133	1	35	mg/kg	06.09.2020 11:27	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		105		107		70-130	%	06.09.2020 11:27
4-Bromofluorobenzene	95		91		92		70-130	%	06.09.2020 11:27

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128511

Parent Sample Id: 663802-001

Matrix: Soil

MS Sample Id: 663802-001 S

Prep Method: SW5035A

Date Prep: 06.09.2020

MSD Sample Id: 663802-001 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	0.0917	92	0.112	112	70-130	20	35	mg/kg	06.09.2020 12:49	
Toluene	<0.00200	0.100	0.0875	88	0.106	106	70-130	19	35	mg/kg	06.09.2020 12:49	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.101	101	71-129	20	35	mg/kg	06.09.2020 12:49	
m,p-Xylenes	<0.00401	0.200	0.173	87	0.208	104	70-135	18	35	mg/kg	06.09.2020 12:49	
o-Xylene	<0.00200	0.100	0.0851	85	0.103	103	71-133	19	35	mg/kg	06.09.2020 12:49	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		108		70-130	%	06.09.2020 12:49
4-Bromofluorobenzene	96		92		70-130	%	06.09.2020 12:49

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

663803

Client Name: COG-Artesia

Site Manager: Sheldon Hitchcock

Sheldon Hitchcock

Project Name:

P Xamy 27 St 1

Project Location: (county, state) Lea, NM

Project #:

Invoice to:

Sheldon Hitchcock

Receiving Laboratory:

Xamy

Sampler Name:

Sheldon Hitchcock

Comments:

SAMPLE IDENTIFICATION

LAB #
(LAB USE ONLY)SAMPLING
YEAR: 2020
DATE TIME

DATE TIME

MATRIX
WATER
SOILPRESERVATIVE
METHOD
HCL
HNO₃
ICE

CONTAINERS

(C)omposite/(G)rab

TPH 8015M (GRO - DRO - MRO)

BTX 8021B

Chloride

Hold

ANALYSIS REQUEST

(Circle or Specify Method No.)

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

REMARKS:

LAB USE ONLY

Sample Temperature

3.2 °C

☒ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

ORIGINAL COPY

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 06.09.2020 07.45.00 AM**Work Order #:** 663803**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
#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: 06.09.2020

Checklist reviewed by:

Jessica Kramer

Date: 06.10.2020



Certificate of Analysis Summary 664229

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 1St.

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea, NM

Date Received in Lab: Thu 06.11.2020 13:40

Report Date: 06.12.2020 13:45

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	664229-001	664229-002	664229-003	664229-004		
	<i>Field Id:</i>	SW-11	SW-12	SW-13	SW-14		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	06.11.2020 10:20	06.11.2020 10:22	06.11.2020 10:24	06.11.2020 10:26		
BTEX by EPA 8021B	<i>Extracted:</i>	06.11.2020 17:37	06.11.2020 17:37	06.11.2020 17:37	06.12.2020 08:01		
	<i>Analyzed:</i>	06.12.2020 06:23	06.12.2020 06:44	06.12.2020 07:04	06.12.2020 11:50		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Toluene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398	<0.00400 0.00400	<0.00401 0.00401		
o-Xylene		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Total BTEX		<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	06.11.2020 17:54	06.11.2020 17:54	06.11.2020 17:54	06.11.2020 17:54		
	<i>Analyzed:</i>	06.12.2020 01:37	06.12.2020 00:34	06.12.2020 00:41	06.12.2020 00:48		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		776 9.96	190 10.0	53.7 10.1	354 10.0		
TPH by SW8015 Mod	<i>Extracted:</i>	06.11.2020 17:20	06.11.2020 17:20	06.11.2020 17:20	06.11.2020 17:20		
	<i>Analyzed:</i>	06.12.2020 02:04	06.12.2020 03:05	06.12.2020 03:26	06.12.2020 03:46		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.2 50.2		
Diesel Range Organics (DRO)		<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.2 50.2		
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<49.8 49.8	<50.2 50.2	<50.2 50.2		
Total TPH		<49.8 49.8	<49.8 49.8	<50.2 50.2	<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 664229

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 1St.

06.12.2020

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 (T104704221-20-17)
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)



06.12.2020

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

Reference: XENCO Report No(s): **664229**
Pygmy 27 1St.
Project Address: Lea, 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) 664229. 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. 664229 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 664229****COG Operating LLC, Artesia, NM**

Pygmy 27 1St.

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-11	S	06.11.2020 10:20		664229-001
SW-12	S	06.11.2020 10:22		664229-002
SW-13	S	06.11.2020 10:24		664229-003
SW-14	S	06.11.2020 10:26		664229-004



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 1St.

Project ID:

Work Order Number(s): 664229

Report Date: 06.12.2020

Date Received: 06.11.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-11**
Lab Sample Id: 664229-001

Matrix: Soil
Date Collected: 06.11.2020 10:20

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Seq Number: 3128751

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	776	9.96	mg/kg	06.12.2020 01:37		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Seq Number: 3128765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	06.12.2020 02:04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	06.12.2020 02:04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.12.2020 02:04	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.12.2020 02:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	06.12.2020 02:04	
o-Terphenyl	84-15-1	79	%	70-135	06.12.2020 02:04	



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-11**
Lab Sample Id: 664229-001

Matrix: Soil
Date Collected: 06.11.2020 10:20

Date Received: 06.11.2020 13:40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:37

Basis: Wet Weight

Seq Number: 3128754

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.12.2020 06:23	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.12.2020 06:23	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.12.2020 06:23	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.12.2020 06:23	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.12.2020 06:23	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.12.2020 06:23	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.12.2020 06:23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.12.2020 06:23		
4-Bromofluorobenzene	460-00-4	100	%	70-130	06.12.2020 06:23		



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-12**
Lab Sample Id: 664229-002

Matrix: Soil
Date Collected: 06.11.2020 10:22

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Seq Number: 3128751

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	190	10.0	mg/kg	06.12.2020 00:34		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Seq Number: 3128765

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	06.12.2020 03:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	06.12.2020 03:05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.12.2020 03:05	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.12.2020 03:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-135	06.12.2020 03:05	
o-Terphenyl	84-15-1	75	%	70-135	06.12.2020 03:05	



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-12**
Lab Sample Id: 664229-002

Matrix: Soil
Date Collected: 06.11.2020 10:22

Date Received: 06.11.2020 13:40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:37

Basis: Wet Weight

Seq Number: 3128754

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.12.2020 06:44	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.12.2020 06:44	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.12.2020 06:44	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.12.2020 06:44	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.12.2020 06:44	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.12.2020 06:44	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.12.2020 06:44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.12.2020 06:44		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.12.2020 06:44		



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-13**
Lab Sample Id: 664229-003

Matrix: Soil
Date Collected: 06.11.2020 10:24

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128751

Prep Method: E300P

% Moisture:

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	53.7	10.1	mg/kg	06.12.2020 00:41		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128765

Prep Method: SW8015P

% Moisture:

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	06.12.2020 03:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	06.12.2020 03:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.12.2020 03:26	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.12.2020 03:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-135	06.12.2020 03:26	
o-Terphenyl	84-15-1	75	%	70-135	06.12.2020 03:26	



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-13**
Lab Sample Id: 664229-003

Matrix: Soil
Date Collected: 06.11.2020 10:24

Date Received: 06.11.2020 13:40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:37

Basis: Wet Weight

Seq Number: 3128754

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.12.2020 07:04	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.12.2020 07:04	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.12.2020 07:04	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.12.2020 07:04	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.12.2020 07:04	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.12.2020 07:04	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.12.2020 07:04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	06.12.2020 07:04		
1,4-Difluorobenzene	540-36-3	113	%	70-130	06.12.2020 07:04		



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-14**
Lab Sample Id: 664229-004

Matrix: Soil
Date Collected: 06.11.2020 10:26

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128751

Prep Method: E300P

% Moisture:

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	354	10.0	mg/kg	06.12.2020 00:48		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128765

Prep Method: SW8015P

% Moisture:

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	06.12.2020 03:46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	06.12.2020 03:46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.12.2020 03:46	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.12.2020 03:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	06.12.2020 03:46	
o-Terphenyl	84-15-1	75	%	70-135	06.12.2020 03:46	



Certificate of Analytical Results 664229

COG Operating LLC, Artesia, NM

Pygmy 27 1St.

Sample Id: **SW-14**
Lab Sample Id: 664229-004

Matrix: Soil
Date Collected: 06.11.2020 10:26

Date Received: 06.11.2020 13:40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.12.2020 08:01

Basis: Wet Weight

Seq Number: 3128788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.12.2020 11:50	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.12.2020 11:50	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.12.2020 11:50	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.12.2020 11:50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.12.2020 11:50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.12.2020 11:50	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.12.2020 11:50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.12.2020 11:50		
1,4-Difluorobenzene	540-36-3	108	%	70-130	06.12.2020 11:50		



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

Pygmy 27 1St.

Analytical Method: Chloride by EPA 300

Seq Number: 3128751

MB Sample Id: 7705319-1-BLK

Matrix: Solid

LCS Sample Id: 7705319-1-BKS

Prep Method: E300P

Date Prep: 06.11.2020

LCSD Sample Id: 7705319-1-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	242	97	248	99	90-110	2	20	mg/kg	06.11.2020 23:59	

Analytical Method: Chloride by EPA 300

Seq Number: 3128751

Parent Sample Id: 664229-001

Matrix: Soil

MS Sample Id: 664229-001 S

Prep Method: E300P

Date Prep: 06.11.2020

MSD Sample Id: 664229-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	776	201	959	91	958	91	90-110	0	20	mg/kg	06.12.2020 01:44	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3128765

MB Sample Id: 7705322-1-BLK

Matrix: Solid

LCS Sample Id: 7705322-1-BKS

Prep Method: SW8015P

Date Prep: 06.11.2020

LCSD Sample Id: 7705322-1-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	971	97	976	98	70-135	1	35	mg/kg	06.12.2020 01:22	
Diesel Range Organics (DRO)	<50.0	1000	1020	102	1020	102	70-135	0	35	mg/kg	06.12.2020 01:22	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		107		105		70-135	%	06.12.2020 01:22
o-Terphenyl	97		99		96		70-135	%	06.12.2020 01:22

Analytical Method: TPH by SW8015 Mod

Seq Number: 3128765

Matrix: Solid

MB Sample Id: 7705322-1-BLK

Prep Method: SW8015P

Date Prep: 06.11.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.12.2020 01:02	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3128765

Matrix: Soil

Parent Sample Id: 664229-001

MS Sample Id: 664229-001 S

Prep Method: SW8015P

Date Prep: 06.11.2020

MSD Sample Id: 664229-001 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 (GRO)	<49.8	996	1050	105	989	99	70-135	6	35	mg/kg	06.12.2020 02:25	
Diesel Range Organics (DRO)	<49.8	996	1080	108	1010	101	70-135	7	35	mg/kg	06.12.2020 02:25	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		97		70-135	%	06.12.2020 02:25
o-Terphenyl	87		81		70-135	%	06.12.2020 02:25

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

Pygmy 27 1St.

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128754

Matrix: Solid

Prep Method: SW5035A

Date Prep: 06.11.2020

MB Sample Id: 7705311-1-BLK

LCS Sample Id: 7705311-1-BKS

LCSD Sample Id: 7705311-1-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	0.112	112	70-130	5	35	mg/kg	06.11.2020 23:35	
Toluene	<0.00200	0.100	0.101	101	0.105	105	70-130	4	35	mg/kg	06.11.2020 23:35	
Ethylbenzene	<0.00200	0.100	0.0958	96	0.0985	99	71-129	3	35	mg/kg	06.11.2020 23:35	
m,p-Xylenes	<0.00400	0.200	0.195	98	0.201	101	70-135	3	35	mg/kg	06.11.2020 23:35	
o-Xylene	<0.00200	0.100	0.0992	99	0.103	103	71-133	4	35	mg/kg	06.11.2020 23:35	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		106		106		70-130	%	06.11.2020 23:35
4-Bromofluorobenzene	94		91		91		70-130	%	06.11.2020 23:35

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128788

Matrix: Solid

Prep Method: SW5035A

Date Prep: 06.12.2020

MB Sample Id: 7705312-1-BLK

LCS Sample Id: 7705312-1-BKS

LCSD Sample Id: 7705312-1-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	0.109	109	70-130	4	35	mg/kg	06.12.2020 10:08	
Toluene	<0.00200	0.100	0.0998	100	0.104	104	70-130	4	35	mg/kg	06.12.2020 10:08	
Ethylbenzene	<0.00200	0.100	0.0920	92	0.0972	97	71-129	5	35	mg/kg	06.12.2020 10:08	
m,p-Xylenes	<0.00400	0.200	0.189	95	0.197	99	70-135	4	35	mg/kg	06.12.2020 10:08	
o-Xylene	<0.00200	0.100	0.0969	97	0.101	101	71-133	4	35	mg/kg	06.12.2020 10:08	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		107		109		70-130	%	06.12.2020 10:08
4-Bromofluorobenzene	96		93		92		70-130	%	06.12.2020 10:08

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128754

Matrix: Soil

Prep Method: SW5035A

Date Prep: 06.11.2020

Parent Sample Id: 664204-015

MS Sample Id: 664204-015 S

MSD Sample Id: 664204-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0976	97	0.104	103	70-130	6	35	mg/kg	06.12.2020 00:16	
Toluene	<0.00202	0.101	0.0940	93	0.101	100	70-130	7	35	mg/kg	06.12.2020 00:16	
Ethylbenzene	<0.00202	0.101	0.0872	86	0.0947	94	71-129	8	35	mg/kg	06.12.2020 00:16	
m,p-Xylenes	<0.00403	0.202	0.180	89	0.194	96	70-135	7	35	mg/kg	06.12.2020 00:16	
o-Xylene	<0.00202	0.101	0.0912	90	0.0994	98	71-133	9	35	mg/kg	06.12.2020 00:16	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		107		70-130	%	06.12.2020 00:16
4-Bromofluorobenzene	94		94		70-130	%	06.12.2020 00:16

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

Pygmy 27 1St.

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128788

Parent Sample Id: 664229-004

Matrix: Soil

MS Sample Id: 664229-004 S

Prep Method: SW5035A

Date Prep: 06.12.2020

MSD Sample Id: 664229-004 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	0.101	101	0.0996	99	70-130	1	35	mg/kg	06.12.2020 10:49	
Toluene	<0.00199	0.0996	0.0962	97	0.0950	94	70-130	1	35	mg/kg	06.12.2020 10:49	
Ethylbenzene	<0.00199	0.0996	0.0905	91	0.0887	88	71-129	2	35	mg/kg	06.12.2020 10:49	
m,p-Xylenes	<0.00398	0.199	0.184	92	0.181	90	70-135	2	35	mg/kg	06.12.2020 10:49	
o-Xylene	<0.00199	0.0996	0.0928	93	0.0910	90	71-133	2	35	mg/kg	06.12.2020 10:49	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		107		70-130	%	06.12.2020 10:49
4-Bromofluorobenzene	95		90		70-130	%	06.12.2020 10:49

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 Custody Record



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

Page 1 of 1

604229

Client Name: COG-Artesia

Site Manager:

Sheldon Hitchcock

Project Name:

Project Location: (county,
state)

Invoice to:

Receiving Laboratory:

Comments:

Project #:

Sampler Name:

Sheldon Hitchcock

SAMPLE IDENTIFICATION

LAB #
(LAB USE ONLY)

SAMPLING

YEAR: 2020

DATE

TIME

WATER
SOIL

HCL
HNO₃

ICE

CONTAINERS

(C)omposite/(G)rab

TPH 8015M (GRO - DRO - MRO)

BTEX 8021B

Chloride

Hold

ANALYSIS REQUEST

(Circle or Specify Method No.)

REMARKS:

Sample Temperature

LAB USE ONLY

☒ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

8.8/2.6

ORIGINAL COPY

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 06.11.2020 01.40.00 PM**Work Order #:** 664229**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)?	2.6	
#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:

Elizabeth McClellan

Date: 06.11.2020

Checklist reviewed by:

Jessica Kramer

Date: 06.12.2020



Certificate of Analysis Summary 664231

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea, NM

Date Received in Lab: Thu 06.11.2020 13:40

Report Date: 06.12.2020 12:41

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	664231-001	664231-002	664231-003	664231-004		
	<i>Field Id:</i>	B-28	B-29	B-30	B-31		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	06.11.2020 10:00	06.11.2020 10:05	06.11.2020 10:10	06.11.2020 10:15		
BTEX by EPA 8021B	<i>Extracted:</i>	06.11.2020 17:37	06.11.2020 17:37	06.11.2020 17:37	06.11.2020 17:37		
	<i>Analyzed:</i>	06.12.2020 07:24	06.12.2020 07:45	06.12.2020 08:05	06.12.2020 08:26		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198		
Toluene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198		
Ethylbenzene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198		
m,p-Xylenes		<0.00402 0.00402	<0.00397 0.00397	<0.00399 0.00399	<0.00397 0.00397		
o-Xylene		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198		
Total Xylenes		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198		
Total BTEX		<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198		
Chloride by EPA 300	<i>Extracted:</i>	06.11.2020 17:54	06.11.2020 17:54	06.11.2020 17:54	06.11.2020 17:54		
	<i>Analyzed:</i>	06.12.2020 00:55	06.12.2020 01:16	06.12.2020 01:23	06.12.2020 01:30		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		296 10.0	208 9.92	272 9.96	221 10.1		
TPH By SW8015 Mod	<i>Extracted:</i>	06.11.2020 17:20	06.11.2020 17:20	06.11.2020 17:20	06.11.2020 17:20		
	<i>Analyzed:</i>	06.12.2020 04:07	06.12.2020 04:27	06.12.2020 04:48	06.12.2020 05:09		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons		<50.2 50.2	<49.8 49.8	<49.8 49.8	<49.9 49.9		
Diesel Range Organics		<50.2 50.2	<49.8 49.8	<49.8 49.8	<49.9 49.9		
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<49.8 49.8	<49.8 49.8	<49.9 49.9		
Total TPH		<50.2 50.2	<49.8 49.8	<49.8 49.8	<49.9 49.9		

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

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

Jessica Kramer
Project Manager



Analytical Report 664231

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St. 1

06.12.2020

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 (T104704221-20-17)
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)



06.12.2020

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

Reference: XENCO Report No(s): **664231**
Pygmy 27 St. 1
Project Address: Lea, 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) 664231. 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. 664231 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 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B-28	S	06.11.2020 10:00		664231-001
B-29	S	06.11.2020 10:05		664231-002
B-30	S	06.11.2020 10:10		664231-003
B-31	S	06.11.2020 10:15		664231-004



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St. 1

Project ID:

Work Order Number(s): 664231

Report Date: 06.12.2020

Date Received: 06.11.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-28**
Lab Sample Id: 664231-001

Matrix: Soil
Date Collected: 06.11.2020 10:00

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128751

Prep Method: E300P

% Moisture:

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	296	10.0	mg/kg	06.12.2020 00:55		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128765

Prep Method: SW8015P

% Moisture:

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.2	50.2	mg/kg	06.12.2020 04:07	U	1
Diesel Range Organics	C10C28DRO	<50.2	50.2	mg/kg	06.12.2020 04:07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.12.2020 04:07	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.12.2020 04:07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-135	06.12.2020 04:07	
o-Terphenyl	84-15-1	73	%	70-135	06.12.2020 04:07	



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-28**
Lab Sample Id: 664231-001

Matrix: Soil
Date Collected: 06.11.2020 10:00

Date Received: 06.11.2020 13:40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:37

Basis: Wet Weight

Seq Number: 3128754

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.12.2020 07:24	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.12.2020 07:24	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.12.2020 07:24	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.12.2020 07:24	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.12.2020 07:24	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.12.2020 07:24	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.12.2020 07:24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	06.12.2020 07:24		
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.12.2020 07:24		



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-29**
Lab Sample Id: 664231-002

Matrix: Soil
Date Collected: 06.11.2020 10:05

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128751

Prep Method: E300P

% Moisture:

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	208	9.92	mg/kg	06.12.2020 01:16		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128765

Prep Method: SW8015P

% Moisture:

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	06.12.2020 04:27	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	06.12.2020 04:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.12.2020 04:27	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.12.2020 04:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	79	%	70-135	06.12.2020 04:27	
o-Terphenyl	84-15-1	72	%	70-135	06.12.2020 04:27	



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-29**

Matrix: Soil

Date Received: 06.11.2020 13:40

Lab Sample Id: 664231-002

Date Collected: 06.11.2020 10:05

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:37

Basis: Wet Weight

Seq Number: 3128754

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.12.2020 07:45	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.12.2020 07:45	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.12.2020 07:45	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	06.12.2020 07:45	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.12.2020 07:45	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.12.2020 07:45	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.12.2020 07:45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.12.2020 07:45		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.12.2020 07:45		



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-30**
Lab Sample Id: 664231-003

Matrix: Soil
Date Collected: 06.11.2020 10:10

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128751

Prep Method: E300P

% Moisture:

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	272	9.96	mg/kg	06.12.2020 01:23		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128765

Prep Method: SW8015P

% Moisture:

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	06.12.2020 04:48	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	06.12.2020 04:48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.12.2020 04:48	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.12.2020 04:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-135	06.12.2020 04:48	
o-Terphenyl	84-15-1	73	%	70-135	06.12.2020 04:48	



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-30**
Lab Sample Id: 664231-003

Matrix: Soil
Date Collected: 06.11.2020 10:10

Date Received: 06.11.2020 13:40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:37

Basis: Wet Weight

Seq Number: 3128754

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.12.2020 08:05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.12.2020 08:05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.12.2020 08:05	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.12.2020 08:05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.12.2020 08:05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.12.2020 08:05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.12.2020 08:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	70-130	06.12.2020 08:05	
4-Bromofluorobenzene	460-00-4	101	%	70-130	06.12.2020 08:05	



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-31**
Lab Sample Id: 664231-004

Matrix: Soil
Date Collected: 06.11.2020 10:15

Date Received: 06.11.2020 13:40

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3128751

Prep Method: E300P

% Moisture:

Date Prep: 06.11.2020 17:54

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	221	10.1	mg/kg	06.12.2020 01:30		1

Analytical Method: TPH By SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3128765

Prep Method: SW8015P

% Moisture:

Date Prep: 06.11.2020 17:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	06.12.2020 05:09	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	06.12.2020 05:09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.12.2020 05:09	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.12.2020 05:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	76	%	70-135	06.12.2020 05:09	
o-Terphenyl	84-15-1	72	%	70-135	06.12.2020 05:09	



Certificate of Analytical Results 664231

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id: **B-31**
Lab Sample Id: 664231-004

Matrix: Soil
Date Collected: 06.11.2020 10:15

Date Received: 06.11.2020 13:40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.11.2020 17:37

Basis: Wet Weight

Seq Number: 3128754

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.12.2020 08:26	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.12.2020 08:26	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.12.2020 08:26	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	06.12.2020 08:26	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.12.2020 08:26	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.12.2020 08:26	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.12.2020 08:26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	06.12.2020 08:26		
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.12.2020 08:26		



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

Pygmy 27 St. 1

Analytical Method: Chloride by EPA 300

Seq Number: 3128751

MB Sample Id: 7705319-1-BLK

Matrix: Solid

LCS Sample Id: 7705319-1-BKS

Prep Method: E300P

Date Prep: 06.11.2020

LCSD Sample Id: 7705319-1-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	242	97	248	99	90-110	2	20	mg/kg	06.11.2020 23:59	

Analytical Method: Chloride by EPA 300

Seq Number: 3128751

Parent Sample Id: 664229-001

Matrix: Soil

MS Sample Id: 664229-001 S

Prep Method: E300P

Date Prep: 06.11.2020

MSD Sample Id: 664229-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	776	201	959	91	958	91	90-110	0	20	mg/kg	06.12.2020 01:44	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128765

MB Sample Id: 7705322-1-BLK

Matrix: Solid

LCS Sample Id: 7705322-1-BKS

Prep Method: SW8015P

Date Prep: 06.11.2020

LCSD Sample Id: 7705322-1-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	971	97	976	98	70-135	1	35	mg/kg	06.12.2020 01:22	
Diesel Range Organics	<50.0	1000	1020	102	1020	102	70-135	0	35	mg/kg	06.12.2020 01:22	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		107		105		70-135	%	06.12.2020 01:22
o-Terphenyl	97		99		96		70-135	%	06.12.2020 01:22

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128765

Matrix: Solid

MB Sample Id: 7705322-1-BLK

Prep Method: SW8015P

Date Prep: 06.11.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.12.2020 01:02	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3128765

Matrix: Soil

Parent Sample Id: 664229-001

MS Sample Id: 664229-001 S

Prep Method: SW8015P

Date Prep: 06.11.2020

MSD Sample Id: 664229-001 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	<49.8	996	1050	105	989	99	70-135	6	35	mg/kg	06.12.2020 02:25	
Diesel Range Organics	<49.8	996	1080	108	1010	101	70-135	7	35	mg/kg	06.12.2020 02:25	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		97		70-135	%	06.12.2020 02:25
o-Terphenyl	87		81		70-135	%	06.12.2020 02:25

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

Pygmy 27 St. 1

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128754

MB Sample Id: 7705311-1-BLK

Matrix: Solid

LCS Sample Id: 7705311-1-BKS

Prep Method: SW5035A

Date Prep: 06.11.2020

LCSD Sample Id: 7705311-1-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	0.112	112	70-130	5	35	mg/kg	06.11.2020 23:35	
Toluene	<0.00200	0.100	0.101	101	0.105	105	70-130	4	35	mg/kg	06.11.2020 23:35	
Ethylbenzene	<0.00200	0.100	0.0958	96	0.0985	99	71-129	3	35	mg/kg	06.11.2020 23:35	
m,p-Xylenes	<0.00400	0.200	0.195	98	0.201	101	70-135	3	35	mg/kg	06.11.2020 23:35	
o-Xylene	<0.00200	0.100	0.0992	99	0.103	103	71-133	4	35	mg/kg	06.11.2020 23:35	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		106		106		70-130	%	06.11.2020 23:35
4-Bromofluorobenzene	94		91		91		70-130	%	06.11.2020 23:35

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128754

Parent Sample Id: 664204-015

Matrix: Soil

MS Sample Id: 664204-015 S

Prep Method: SW5035A

Date Prep: 06.11.2020

MSD Sample Id: 664204-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0976	97	0.104	103	70-130	6	35	mg/kg	06.12.2020 00:16	
Toluene	<0.00202	0.101	0.0940	93	0.101	100	70-130	7	35	mg/kg	06.12.2020 00:16	
Ethylbenzene	<0.00202	0.101	0.0872	86	0.0947	94	71-129	8	35	mg/kg	06.12.2020 00:16	
m,p-Xylenes	<0.00403	0.202	0.180	89	0.194	96	70-135	7	35	mg/kg	06.12.2020 00:16	
o-Xylene	<0.00202	0.101	0.0912	90	0.0994	98	71-133	9	35	mg/kg	06.12.2020 00:16	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		107		70-130	%	06.12.2020 00:16
4-Bromofluorobenzene	94		94		70-130	%	06.12.2020 00:16

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

[illegible]

ANALYSIS REQUEST
(Circle or Specify Method No.)

[illegible]

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of

1

XENCO Laboratories**Prelogin/Nonconformance Report- Sample Log-In****Client:** COG Operating LLC**Date/ Time Received:** 06.11.2020 01.40.00 PM**Work Order #:** 664231**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)?	2.6	
#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:

Elizabeth McClellan

Date: 06.11.2020

Checklist reviewed by:

Jessica Kramer

Date: 06.12.2020

Certificate of Analysis Summary 664446

COG Operating LLC, Artesia, NM

Project Name: Pygmy 27 St. 1

Project Id:

Date Received in Lab: Mon 06.15.2020 11:48

Contact: Sheldon Hitchcock

Report Date: 07.29.2020 13:22

Project Location: Lea, Nm

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	664446-001					
	<i>Field Id:</i>	SW-11					
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL					
	<i>Sampled:</i>	06.15.2020 10:08					
Chloride by EPA 300	<i>Extracted:</i>	06.15.2020 14:50					
	<i>Analyzed:</i>	** * * * *					
	<i>Units/RL:</i>	mg/kg RL					
Chloride		163 9.90					

BRL - Below Reporting Limit

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





Analytical Report 664446

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

Pygmy 27 St. 1

07.29.2020

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)



07.29.2020

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **664446**

Pygmy 27 St. 1

Project Address: Lea, 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) 664446. 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. 664446 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 664446

COG Operating LLC, Artesia, NM

Pygmy 27 St. 1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-11	S	06.15.2020 10:08		664446-001



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Pygmy 27 St. 1

Project ID:

Work Order Number(s): 664446

Report Date: 07.29.2020

Date Received: 06.15.2020

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 664446****COG Operating LLC, Artesia, NM**

Pygmy 27 St. 1

Sample Id: **SW-11**
Lab Sample Id: 664446-001

Matrix: Soil
Date Collected: 06.15.2020 10:08

Date Received: 06.15.2020 11:48

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.15.2020 14:50

Basis: Wet Weight

Seq Number: 3129015

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	163	9.90	mg/kg	06.15.2020 14:02		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

Pygmy 27 St. 1

Analytical Method: Chloride by EPA 300

Seq Number: 3129015

MB Sample Id: 7705472-1-BLK

Matrix: Solid

LCS Sample Id: 7705472-1-BKS

Prep Method: E300P

Date Prep: 06.15.2020

LCSD Sample Id: 7705472-1-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	246	98	254	102	90-110	3	20	mg/kg	06.15.2020 14:51	

Analytical Method: Chloride by EPA 300

Seq Number: 3129015

Parent Sample Id: 664446-001

Matrix: Soil

MS Sample Id: 664446-001 S

Prep Method: E300P

Date Prep: 06.15.2020

MSD Sample Id: 664446-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	163	199	374	106	374	106	90-110	0	20	mg/kg	06.15.2020 15:12	

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

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APPENDIX D





☀ 250°W (T) ● 32°26'41"N, 103°34'20"W ±16ft ▲ 3671ft



03 Jun 2020, 12:39:25

NE E SE S
60 90 120 150 180

☀ 112°E (T) ● 32°26'41"N, 103°34'21"W ±16ft ▲ 3582ft



04 Jun 2020, 14:28:18



☀ 300°NW (T) ● 32°26'41"N, 103°34'22"W ±16ft ▲ 3674ft



09 Jun 2020, 09:49:05

