CONCHO

October 31, 2018

Olivia Yu and Christina Hernandez
Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM

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

Re: Closure Report
GC Federal #11 Tank Battery (8/28/18)
RP#: 1RP-5179
GPS: 32.81647, -103.79966
Unit Letter P, Section 19, Township 17 South, Range 32 East
Lea County, New Mexico

Ms. Yu/Ms. Tucker,

COG Operating, LLC (COG) is pleased to submit the following work plan in response to a release that occurred at the GC Federal #11 Tank Battery located in Unit Letter P, Section 19, Township 17 South and Range 32 East in Lea County, New Mexico.

BACKGROUND

The release was discovered on August 28, 2018 and a C-141 initial report was submitted and approved by the New Mexico Oil Conservation Division (NMOCD). The release was caused by a flowline rupture and occurred in the pasture. Approximately two (2) barrels of oil and four (4) barrels of produced water were released in the pasture. None of the fluids were recovered. The initial C-141 is shown in Appendix A.

GROUNDWATER AND REGULATORY

According to the New Mexico Office of the State Engineer (NMOSE), reported water wells are in Section 1, 10 and 12 with groundwater depth of 225', 132' and 120' below surface, respectively. Based on the Chevron Groundwater Trend map, the depth to groundwater in the project vicinity is greater than 200-feet below ground surface (BGS). The water well information is shown in Appendix B.

A risk based evaluation and site determinations were perform 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 facilities 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 is summarized in Appendix B. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
None Encountered	>100 feet

Delineation and Closure Criteria:

Remedial Action Levels (RALs)	
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

REMEDIATION PLAN

All samples were below the Table 1 closure criteria and thus no remediation will occur.

SITE RECLAMATION AND RESTORATION

Concho will perform the reclamation and revegetation in the pasture area per NMED 19.15.29.13. The reclamation will be achieved by removing the soil to a depth of 4.0' below surface. Approximately 500 cubic yards of material will be removed and hauled to proper disposal. Once excavated, soil samples will be collected from the sidewalls to confirm the removal of impact soil greater than 600 mg/kg chlorides or background (whichever is greater). The backfilled material will be non-contaminated with concentrations below 600 mg/kg chlorides and reseeded per BLM guidelines when appropriate.

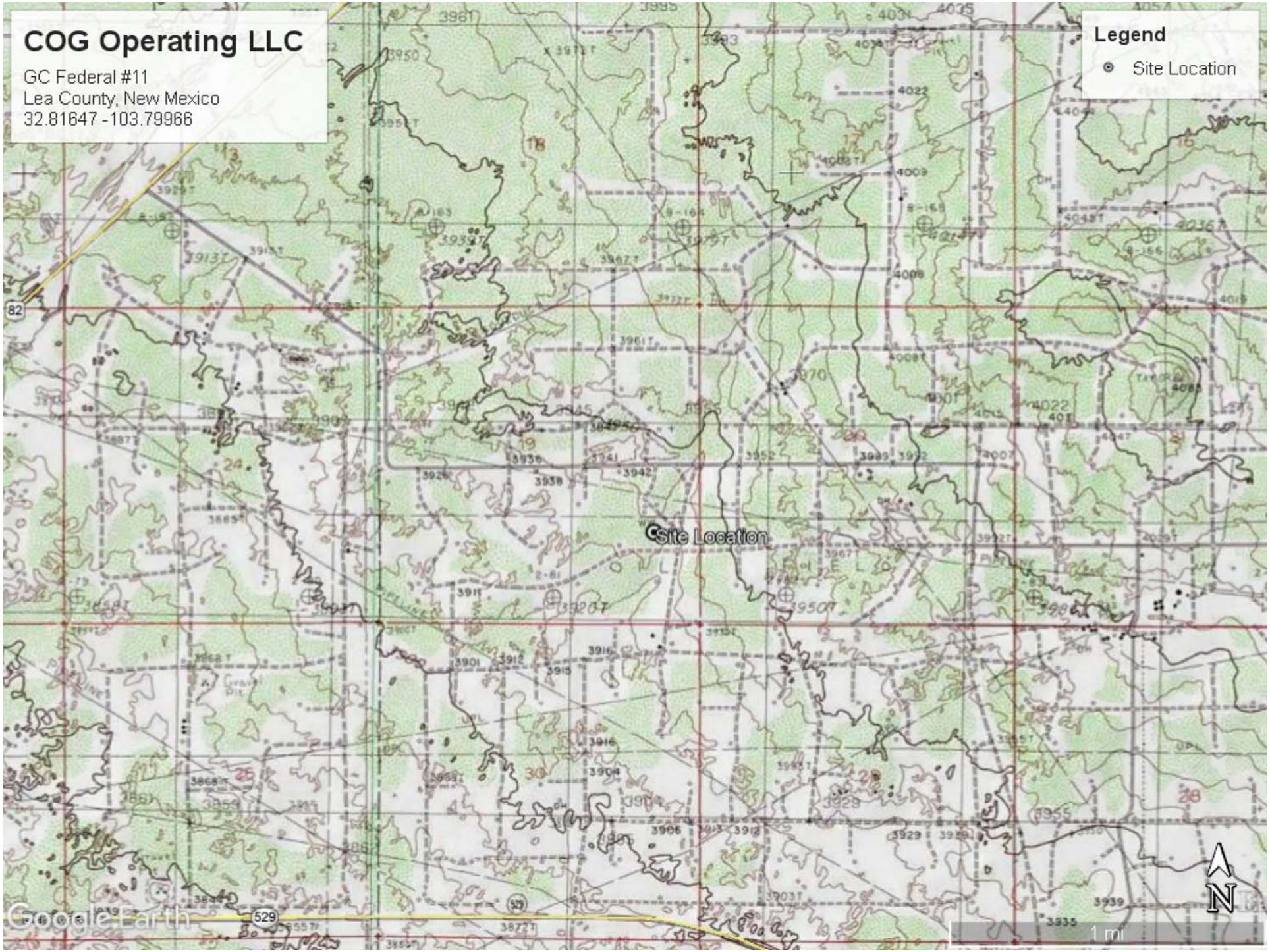
CLOSURE REQUEST

Based on the information provided, COG requesting closure of the release. The signed C-141 Final is included in Appendix A. Should you have any questions or concerns on the closure report, please do not hesitate to contact me.
Sincerely,

Sincerely,
Concho Operating, LLC

Ike Tavarez, P. G.
Senior HSE Supervisor
itavarez@concho.com

Figures


COG Operating LLC
GC Federal #11
Lea County, New Mexico
32.81647 -103.79966
Legend
Site Location
Site Location
82
529
Google Earth
1 mi
N


COG Operating LLC
GC Federal #11
Lea County, New Mexico
32.81647 -103.79966
Legend
Sample Locations
Spill Area
T-2
T-2
T-1
T-3
N
Google Earth
200 ft

Tables

Table 1
COG Operating LLC.
GC Federal #11
Lea County, New Mexico

Sample ID	Sample Date	Soil Status		TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
		In-Situ	Removed	GRO	DRO	MRO	*Total*	GRO	DRO	*Total*			
Average Depth to Groundwater (ft)		**>100'**											
NMOCD RRAL Limits (mg/kg)				**-**	**-**	**-**	**2,500**	**-**	**-**	**1,000**	**10**	**50**	**20,000**
T-1 (1')	9/20/18			<14.9	<14.9	<14.9	<14.9	<14.9	<14.9	<14.9	<0.00202	<0.00202	374
T-1 (2')	9/20/18			<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	1,910
T-1 (4')	9/20/18			-	-	-	-	-	-	-	-	-	111
T-1 (6')	9/20/18			-	-	-	-	-	-	-	-	-	264
T-1 (8')	9/20/18			-	-	-	-	-	-	-	-	-	6,870
T-1 (10')	9/20/18			-	-	-	-	-	-	-	-	-	9,200
T-1 (12')	9/20/18			-	-	-	-	-	-	-	-	-	7,160
T-1 (14')	9/20/18			-	-	-	-	-	-	-	-	-	5,090
T-2 (1')	9/20/18			<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	100
T-2 (2')	9/20/18			<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	795
T-2 (4')	9/20/18			-	-	-	-	-	-	-	-	-	7,700
T-2 (6')	9/20/18			-	-	-	-	-	-	-	-	-	4,150
T-2 (8')	9/20/18			-	-	-	-	-	-	-	-	-	5,100
T-2 (10')	9/20/18			-	-	-	-	-	-	-	-	-	3,160
T-3 (1')	9/20/18			<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	627
T-3 (2')	9/20/18			<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	994
T-3 (4')	9/20/18												8,330
T-3 (6')	9/20/18			-	-	-	-	-	-	-	-	-	11,000
T-3 (8')	9/20/18			-	-	-	-	-	-	-	-	-	10,600
T-3 (10')	9/20/18			-	-	-	-	-	-	-	-	-	5,200
T-3 (12')	9/20/18			-	-	-	-	-	-	-	-	-	3,220

Proposed Excavation or Removal

(-)

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	COG Operating, LLC	OGRID	229137
Contact Name	Robert McNeill	Contact Telephone	(432) 683-7443
Contact email	RMcNeill@conhco.com	Incident # *(assigned by OCD)*	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.81647 Longitude -103.79966

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	GC Federal #011	Site Type	Tank Battery
Date Release Discovered	August 28, 2018	API# *(if applicable)*	

Unit Letter	Section	Township	Range	County
P	19	17S	32E	Lea

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

Nature and Volume of Release

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

■ Crude Oil	Volume Released (bbls) 2	Volume Recovered (bbls) 0
■ Produced Water	Volume Released (bbls) 4	Volume Recovered (bbls) 0
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	■ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by a flow line rupture. The flow line is being repaired
The release was in the pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will evaluate the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Initial Response

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

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not 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: DeAnn Grant Title: HSE Administrative Assistant

Signature: DeAnn Grant Date: 8/30/2018

email: agrant@concho.com Telephone: (432) 253-4513

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP 5179
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: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 10/24/18

email: itavarez@concho.com Telephone: 432-683-7443

OCD Only

Received by: _____ Date: _____

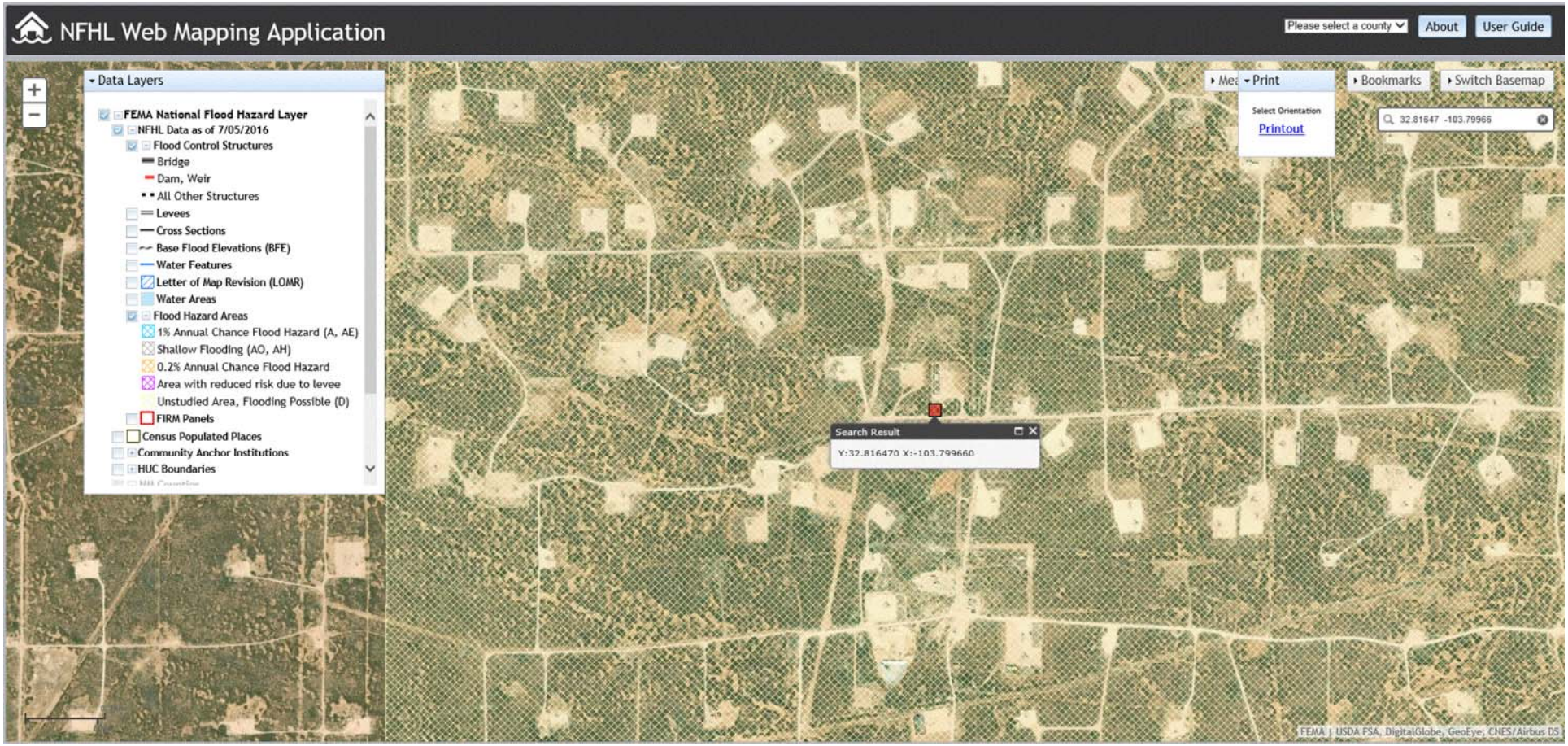
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Appendix B


COG Operating LLC
GC Federal #11
Lea County, New Mexico
32.81647 -103.79966
KARST
Legend
High
Low
Medium
Site Location
Site Location
Google Earth
529
N
1 mi


NFHL Web Mapping Application
Please select a county
About
User Guide
Data Layers
FEMA National Flood Hazard Layer
NFHL Data as of 7/05/2016
Flood Control Structures
Bridge
Dam, Weir
All Other Structures
Levees
Cross Sections
Base Flood Elevations (BFE)
Water Features
Letter of Map Revision (LOMR)
Water Areas
Flood Hazard Areas
1% Annual Chance Flood Hazard (A, AE)
Shallow Flooding (AO, AH)
0.2% Annual Chance Flood Hazard
Area with reduced risk due to levee
Unstudied Area, Flooding Possible (D)
FIRM Panels
Census Populated Places
Community Anchor Institutions
HUC Boundaries
Print
Select Orientation
Printout
Bookmarks
Switch Basemap
32.81647 -103.79966
Search Result
Y:32.816470 X:-103.799660
FEMA | USDA FSA, DigitalGlobe, GeoEye, CNES/Airbus DS

Water Well Data
Average Depth to Groundwater (ft)
COG - GC Federal #11, Lea County, New Mexico

16 South 31 East

6	5	4	3	2 290	1
7	8	9	10	11	12 288
18	17	16	15	14 113 314	13 299
19	20	21	22	23	24
30	29	28	27	26	25
31 290	32	33	34	35	36

16 South 32 East

6	5	4	3 65	2 265	1 265
7	8	9	10	11	12 215
18	17	16 221	15	14	13 215
19 220	20	21 210	22	23 210	24
30	29	28	27	26 243	25
31	32	33	34	35	36 260

16 South 33 East

6	5 180	4 150	3 130	2 148	1 142
7	8 200	9	10 182	11	12 142
18	17 182	16 180	15 175	14 143	13 110
19	20	21	22	23 120	24
30 191	29	28 190	27 130	26 143	25 120
31 190	32 168	33	34 160	35	36

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 271	35	36

17 South 32 East

6	5	4 82	3 175	2 60	1 225
7	8	9	10 132	11 70 88	12 120
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Maljamar

17 South 33 East

6 90	5	4	3 155	2 158	1 150
7 167	8 173	9 161	10	11	12
18 188	17 180	16	15	14	13 165
19	20 190	21	22	23 115	24
30 69	29 60	28	27	26	25
31	32	33 120	34	35 155	36

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 400
18	17	16	15 98	14 317	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 261	36

18 South 32 East

6	5	4 65	3	2	1
7 460 82	8	9	10	11	12
18	17	16 84	15	14	13
19	20 164	21	22 429	23	24
30	29	28	27	26	25
31	32	33	34 117	35	36

18 South 33 East

6	5	4	3 60	2	1
7	8 100	9	10 62	11 46	12 143 140
18	17 85	16	15	14 36	13 60
19 >140	20	21	22	23	24 195
30 35	29	28	27	26	25
31	32	33 177	34	35	36

88 New Mexico State Engineers Well Reports
105 USGS Well Reports
90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
Geology and Groundwater Resources of Eddy County, NM (Report 3)

USGS science for a changing world

National Water Information System: Mapper

Sites | Map

Search

Surface-Water Sites

Groundwater Sites

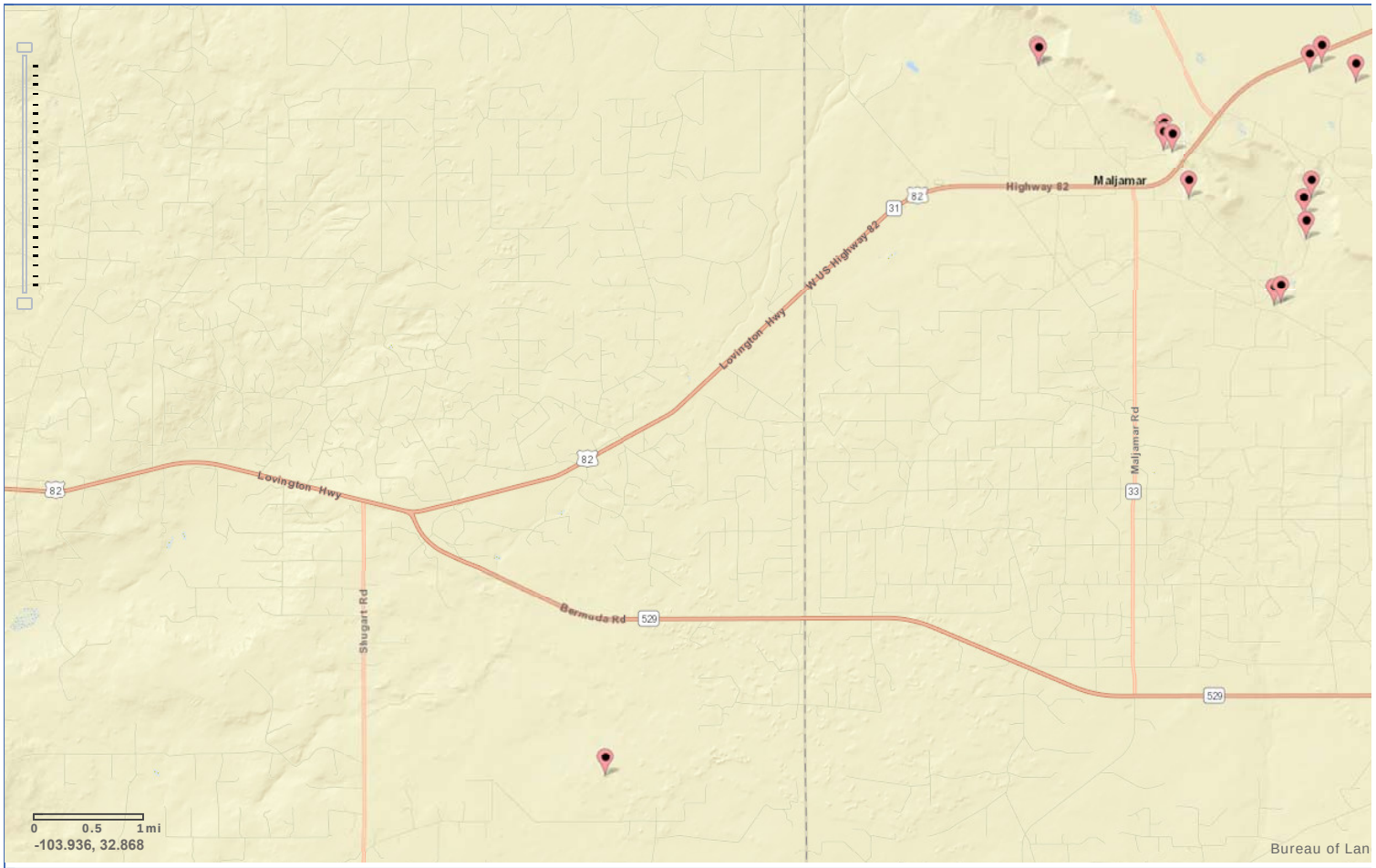
Active Sites
Any data
Instantaneous data
Daily data
Water-quality data
Measurements
Annual Report

Inactive Sites
Any data
Instantaneous data
Daily data
Water-quality data
Measurements
Annual Report

Springs

Atmospheric Sites

Other Sites



Site Information

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

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 03980		L	LE	2	2	2	01	17S	32E	620466	3637594*	270	200	70
L 03980 S		L	LE	4	4	4	02	17S	32E	618870	3636170*	255	179	76
L 03980 S2		L	LE	3	2	3	01	17S	32E	619470	3636581*	225	175	50
L 04019		L	LE	4	3	4	02	17S	32E	618468	3636166*	182		
L 04020		L	LE	3	3	4	02	17S	32E	618268	3636166*	200		
L 04021	R	L	LE	3	4	4	02	17S	32E	618670	3636170*	190		
L 04021 POD3		L	LE		3	4	03	17S	32E	616761	3636252*	247		
L 04021 S		L	LE	2	4	4	03	17S	32E	617262	3636354*	260		
L 13047 POD1		L	LE				11	17S	32E	618187	3635254*	140		
L 13050 POD1		L	LE	2	2	1	10	17S	32E	616463	3635945*	156	132	24
RA 08855		RA	LE	4	1	1	10	17S	32E	616061	3635742*	158		
RA 09505		RA	LE	2	2	1	10	17S	32E	616462	3635944	147		
RA 09505 S		RA	LE	2	2	1	10	17S	32E	616463	3635945*	144		
RA 10175		RA	LE		2	1	28	17S	32E	614814	3631005*	158		
RA 11684 POD1		RA	LE	1	1	4	11	17S	32E	618216	3635124	275		
RA 11684 POD2		RA	LE	1	1	4	11	17S	32E	618313	3635248	275		
RA 11684 POD3		RA	LE	3	3	1	11	17S	32E	618262	3635371	275		
RA 11684 POD4		RA	LE	1	3	2	11	17S	32E	618334	3635521	275		
RA 11684 POD5		RA	LE	3	1	4	11	17S	32E	618353	3635047	275		
RA 11734 POD1		RA	LE	2	2	1	10	17S	32E	616556	3635929	165		
RA 11911 POD1		RA	LE	1	3	1	24	17S	32E	619192	3632296	35		
RA 12020 POD1		RA	LE	2	2	1	28	17S	32E	614828	3630954	120	81	39
RA 12042 POD1		RA	LE	2	2	1	28	17S	32E	614891	3631181	400		

***UTM location was derived from PLSS - see Help**

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

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
RA 11590 POD1	RA	ED	2	1	3	32	17S	31E	603315	3628545	158		
RA 11590 POD3	RA	ED	3	1	2	32	17S	31E	603932	3629260	60		
RA 11590 POD4	RA	ED	4	1	1	32	17S	31E	603308	3629253	55		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 3

PLSS Search:

Township: 17S **Range:** 31E

Average Depth to Water: **153 feet**

Minimum Depth: **81 feet**

Maximum Depth: **200 feet**

Record Count: 23

PLSS Search:

Township: 17S **Range:** 32E

Appendix C

Certificate of Analysis Summary 599895

COG Operating LLC, Artesia, NM

Project Name: GC Federal #11(8-28-18)

Project Id:
Contact: Ike Tavarez
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Sep-21-18 11:06 am
Report Date: 25-SEP-18
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	599895-001		599895-002		599895-003		599895-004		599895-005		599895-006	
	Field Id:	T-1 (1')		T-1 (2')		T-1 (4')		T-1 (6')		T-1 (8')		T-1 (10')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Sep-21-18 15:00		Sep-21-18 15:00									
	Analyzed:	Sep-22-18 06:57		Sep-22-18 07:18									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		<0.00202	0.00202	<0.00199	0.00199								
Toluene		<0.00202	0.00202	<0.00199	0.00199								
Ethylbenzene		<0.00202	0.00202	<0.00199	0.00199								
m,p-Xylenes		<0.00403	0.00403	<0.00398	0.00398								
o-Xylene		<0.00202	0.00202	<0.00199	0.00199								
Total Xylenes		<0.00202	0.00202	<0.00199	0.00199								
Total BTEX		<0.00202	0.00202	<0.00199	0.00199								
Chloride by EPA 300	***Extracted:***	Sep-21-18 16:45		Sep-21-18 16:45		Sep-21-18 16:45		Sep-21-18 16:45		Sep-21-18 16:45		Sep-21-18 16:45	
	Analyzed:	Sep-24-18 11:59		Sep-24-18 12:05		Sep-24-18 12:10		Sep-24-18 12:27		Sep-24-18 12:33		Sep-24-18 12:39	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		374	5.00	1910	25.0	111	4.95	264	4.97	6870	50.0	9200	99.2
TPH By SW8015 Mod	***Extracted:***	Sep-21-18 16:00		Sep-21-18 16:00									
	Analyzed:	Sep-24-18 11:11		Sep-22-18 23:06									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons		<14.9	14.9	<15.0	15.0								
Diesel Range Organics		<14.9	14.9	<15.0	15.0								
Motor Oil Range Hydrocarbons (MRO)		<14.9	14.9	<15.0	15.0								
Total TPH		<14.9	14.9	<15.0	15.0								

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 599895

COG Operating LLC, Artesia, NM

Project Name: GC Federal #11(8-28-18)

Project Id:

Contact: Ike Tavarez

Project Location: Lea County, New Mexico

Date Received in Lab: Fri Sep-21-18 11:06 am

Report Date: 25-SEP-18

Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	599895-007		599895-008		599895-009		599895-010		599895-011		599895-012	
	Field Id:	T-1 (12')		T-1 (14')		T-2 (1')		T-2 (2')		T-2 (4')		T-2 (6')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00	
BTEX by EPA 8021B	***Extracted:***					Sep-21-18 15:00		Sep-21-18 15:00					
	Analyzed:					Sep-22-18 07:40		Sep-22-18 08:00					
	Units/RL:					mg/kg	RL	mg/kg	RL				
Benzene						<0.00199	0.00199	<0.00201	0.00201				
Toluene						<0.00199	0.00199	<0.00201	0.00201				
Ethylbenzene						<0.00199	0.00199	<0.00201	0.00201				
m,p-Xylenes						<0.00398	0.00398	<0.00402	0.00402				
o-Xylene						<0.00199	0.00199	<0.00201	0.00201				
Total Xylenes						<0.00199	0.00199	<0.00201	0.00201				
Total BTEX						<0.00199	0.00199	<0.00201	0.00201				
Chloride by EPA 300	***Extracted:***	Sep-21-18 16:45		Sep-21-18 16:45		Sep-22-18 09:30		Sep-22-18 09:30		Sep-22-18 09:30		Sep-22-18 09:30	
	Analyzed:	Sep-24-18 12:44		Sep-24-18 12:50		Sep-22-18 15:24		Sep-22-18 15:29		Sep-22-18 15:35		Sep-22-18 15:41	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		7160	49.5	5090	49.9	100	4.95	795	25.0	7700	49.5	4150	49.5
TPH By SW8015 Mod	***Extracted:***					Sep-21-18 16:00		Sep-21-18 16:00					
	Analyzed:					Sep-22-18 23:24		Sep-22-18 23:42					
	Units/RL:					mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons						<15.0	15.0	<15.0	15.0				
Diesel Range Organics						<15.0	15.0	<15.0	15.0				
Motor Oil Range Hydrocarbons (MRO)						<15.0	15.0	<15.0	15.0				
Total TPH						<15.0	15.0	<15.0	15.0				

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 599895

COG Operating LLC, Artesia, NM

Project Name: GC Federal #11(8-28-18)

Project Id:

Contact: Ike Tavarez

Project Location: Lea County, New Mexico

Date Received in Lab: Fri Sep-21-18 11:06 am

Report Date: 25-SEP-18

Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	599895-013		599895-014		599895-015		599895-016		599895-017		599895-018	
	Field Id:	T-2 (8')		T-2 (10')		T-3 (1')		T-3 (2')		T-3 (4')		T-3 (6')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00	
BTEX by EPA 8021B	***Extracted:***					Sep-21-18 15:00		Sep-21-18 15:00					
	Analyzed:					Sep-22-18 08:21		Sep-22-18 08:41					
	Units/RL:					mg/kg	RL	mg/kg	RL				
Benzene						<0.00202	0.00202	<0.00200	0.00200				
Toluene						<0.00202	0.00202	<0.00200	0.00200				
Ethylbenzene						<0.00202	0.00202	<0.00200	0.00200				
m,p-Xylenes						<0.00403	0.00403	<0.00399	0.00399				
o-Xylene						<0.00202	0.00202	<0.00200	0.00200				
Total Xylenes						<0.00202	0.00202	<0.00200	0.00200				
Total BTEX						<0.00202	0.00202	<0.00200	0.00200				
Chloride by EPA 300	***Extracted:***	Sep-22-18 09:30		Sep-22-18 09:30		Sep-22-18 09:30		Sep-22-18 09:30		Sep-22-18 09:30		Sep-22-18 09:30	
	Analyzed:	Sep-22-18 15:58		Sep-22-18 16:03		Sep-22-18 16:09		Sep-22-18 16:15		Sep-22-18 16:20		Sep-22-18 16:43	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		5100	49.5	3160	49.9	627	4.95	994	4.95	8330	49.5	11000	100
TPH By SW8015 Mod	***Extracted:***					Sep-21-18 14:00		Sep-21-18 14:00					
	Analyzed:					Sep-22-18 09:55		Sep-22-18 02:14					
	Units/RL:					mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons						<15.0	15.0	<15.0	15.0				
Diesel Range Organics						<15.0	15.0	<15.0	15.0				
Motor Oil Range Hydrocarbons (MRO)						<15.0	15.0	<15.0	15.0				
Total TPH						<15.0	15.0	<15.0	15.0				

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 599895

COG Operating LLC, Artesia, NM

Project Name: GC Federal #11(8-28-18)

Project Id:
Contact: Ike Tavarez
Project Location: Lea County, New Mexico

Date Received in Lab: Fri Sep-21-18 11:06 am
Report Date: 25-SEP-18
Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	599895-019		599895-020		599895-021			
	Field Id:	T-3 (8')		T-3 (10')		T-3 (12')			
	Depth:								
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Sep-20-18 00:00		Sep-20-18 00:00		Sep-20-18 00:00			
Chloride by EPA 300	***Extracted:***	Sep-22-18 09:30		Sep-22-18 09:30		Sep-22-18 09:30			
	Analyzed:	Sep-22-18 16:49		Sep-22-18 17:06		Sep-22-18 17:12			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		10600	99.4	5200	50.0	3220	24.8		

Jessica Kramer
Project Assistant

Analytical Report 599895

for

COG Operating LLC

Project Manager: Ike Tavarez

GC Federal #11(8-28-18)

25-SEP-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-16)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

25-SEP-18

Project Manager: **Ike Tavarez**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **599895**
GC Federal #11(8-28-18)
Project Address: Lea County, New Mexico

Ike Tavarez:

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) 599895. 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. 599895 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,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-1 (1')	S	09-20-18 00:00		599895-001
T-1 (2')	S	09-20-18 00:00		599895-002
T-1 (4')	S	09-20-18 00:00		599895-003
T-1 (6')	S	09-20-18 00:00		599895-004
T-1 (8')	S	09-20-18 00:00		599895-005
T-1 (10')	S	09-20-18 00:00		599895-006
T-1 (12')	S	09-20-18 00:00		599895-007
T-1 (14')	S	09-20-18 00:00		599895-008
T-2 (1')	S	09-20-18 00:00		599895-009
T-2 (2')	S	09-20-18 00:00		599895-010
T-2 (4')	S	09-20-18 00:00		599895-011
T-2 (6')	S	09-20-18 00:00		599895-012
T-2 (8')	S	09-20-18 00:00		599895-013
T-2 (10')	S	09-20-18 00:00		599895-014
T-3 (1')	S	09-20-18 00:00		599895-015
T-3 (2')	S	09-20-18 00:00		599895-016
T-3 (4')	S	09-20-18 00:00		599895-017
T-3 (6')	S	09-20-18 00:00		599895-018
T-3 (8')	S	09-20-18 00:00		599895-019
T-3 (10')	S	09-20-18 00:00		599895-020
T-3 (12')	S	09-20-18 00:00		599895-021

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3064161 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 599704-001 S,599704-001 SD,599895-009,599895-010,599895-015,599895-016,599895-001,599895-002.

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

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (1')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-001	Date Collected:	09.20.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**374**	5.00	mg/kg	09.24.18 11.59		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064217				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	09.24.18 11.11	U	1
Diesel Range Organics	C10C28DRO	<14.9	14.9	mg/kg	09.24.18 11.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	09.24.18 11.11	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	09.24.18 11.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	09.24.18 11.11	
o-Terphenyl	84-15-1	81	%	70-135	09.24.18 11.11	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (1')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-001	Date Collected:	09.20.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.21.18 15.00	Basis:	Wet Weight
Seq Number:	3064161				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.22.18 06.57	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.22.18 06.57	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.22.18 06.57	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.22.18 06.57	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.22.18 06.57	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.22.18 06.57	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.22.18 06.57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	92	%	70-130	09.22.18 06.57	
4-Bromofluorobenzene	460-00-4	149	%	70-130	09.22.18 06.57	**

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (2')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-002	Date Collected:	09.20.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1910**	25.0	mg/kg	09.24.18 12.05		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064217				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.22.18 23.06	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.22.18 23.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.22.18 23.06	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.22.18 23.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	09.22.18 23.06	
o-Terphenyl	84-15-1	103	%	70-135	09.22.18 23.06	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (2')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-002	Date Collected:	09.20.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.21.18 15.00	Basis:	Wet Weight
Seq Number:	3064161				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.22.18 07.18	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.22.18 07.18	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.22.18 07.18	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.22.18 07.18	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.22.18 07.18	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.22.18 07.18	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.22.18 07.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	92	%	70-130	09.22.18 07.18	
4-Bromofluorobenzene	460-00-4	151	%	70-130	09.22.18 07.18	**

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (4')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-003	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**111**	4.95	mg/kg	09.24.18 12.10		1

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (6')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-004	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**264**	4.97	mg/kg	09.24.18 12.27		1

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (8')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-005	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6870**	50.0	mg/kg	09.24.18 12.33		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (10')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-006	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9200**	99.2	mg/kg	09.24.18 12.39		20

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (12')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-007	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7160**	49.5	mg/kg	09.24.18 12.44		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-1 (14')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-008	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.21.18 16.45	Basis:	Wet Weight
Seq Number:	3064181				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5090**	49.9	mg/kg	09.24.18 12.50		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (1')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-009	Date Collected:	09.20.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**100**	4.95	mg/kg	09.22.18 15.24		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064217				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.22.18 23.24	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.22.18 23.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.22.18 23.24	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.22.18 23.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	09.22.18 23.24	
o-Terphenyl	84-15-1	118	%	70-135	09.22.18 23.24	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (1')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-009	Date Collected:	09.20.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.21.18 15.00	Basis:	Wet Weight
Seq Number:	3064161				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.22.18 07.40	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.22.18 07.40	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.22.18 07.40	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.22.18 07.40	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.22.18 07.40	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.22.18 07.40	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.22.18 07.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	87	%	70-130	09.22.18 07.40	
4-Bromofluorobenzene	460-00-4	148	%	70-130	09.22.18 07.40	**

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (2')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-010	Date Collected:	09.20.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**795**	25.0	mg/kg	09.22.18 15.29		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 16.00	Basis:	Wet Weight
Seq Number:	3064217				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.22.18 23.42	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.22.18 23.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.22.18 23.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.22.18 23.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	09.22.18 23.42	
o-Terphenyl	84-15-1	104	%	70-135	09.22.18 23.42	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (2')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-010	Date Collected:	09.20.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.21.18 15.00	Basis:	Wet Weight
Seq Number:	3064161				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.22.18 08.00	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.22.18 08.00	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.22.18 08.00	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.22.18 08.00	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.22.18 08.00	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.22.18 08.00	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.22.18 08.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	153	%	70-130	09.22.18 08.00	**
1,4-Difluorobenzene	540-36-3	90	%	70-130	09.22.18 08.00	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (4')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-011	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7700**	49.5	mg/kg	09.22.18 15.35		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (6')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-012	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4150**	49.5	mg/kg	09.22.18 15.41		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (8')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-013	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5100**	49.5	mg/kg	09.22.18 15.58		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-2 (10')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-014	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3160**	49.9	mg/kg	09.22.18 16.03		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (1')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-015	Date Collected:	09.20.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**627**	4.95	mg/kg	09.22.18 16.09		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 14.00	Basis:	Wet Weight
Seq Number:	3064205				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.22.18 09.55	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.22.18 09.55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.22.18 09.55	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.22.18 09.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	09.22.18 09.55	
o-Terphenyl	84-15-1	99	%	70-135	09.22.18 09.55	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (1')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-015	Date Collected:	09.20.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.21.18 15.00	Basis:	Wet Weight
Seq Number:	3064161				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.22.18 08.21	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.22.18 08.21	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.22.18 08.21	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.22.18 08.21	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.22.18 08.21	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.22.18 08.21	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.22.18 08.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	89	%	70-130	09.22.18 08.21	
4-Bromofluorobenzene	460-00-4	144	%	70-130	09.22.18 08.21	**

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (2')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-016	Date Collected:	09.20.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**994**	4.95	mg/kg	09.22.18 16.15		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	09.21.18 14.00	Basis:	Wet Weight
Seq Number:	3064205				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	09.22.18 02.14	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	09.22.18 02.14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	09.22.18 02.14	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	09.22.18 02.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	09.22.18 02.14	
o-Terphenyl	84-15-1	94	%	70-135	09.22.18 02.14	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (2')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-016	Date Collected:	09.20.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.21.18 15.00	Basis:	Wet Weight
Seq Number:	3064161				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.22.18 08.41	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.22.18 08.41	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.22.18 08.41	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.22.18 08.41	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.22.18 08.41	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.22.18 08.41	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.22.18 08.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	143	%	70-130	09.22.18 08.41	**
1,4-Difluorobenzene	540-36-3	86	%	70-130	09.22.18 08.41	

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (4')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-017	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**8330**	49.5	mg/kg	09.22.18 16.20		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (6')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-018	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11000**	100	mg/kg	09.22.18 16.43		20

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (8')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-019	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10600**	99.4	mg/kg	09.22.18 16.49		20

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (10')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-020	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5200**	50.0	mg/kg	09.22.18 17.06		10

Certificate of Analytical Results 599895

COG Operating LLC, Artesia, NM

GC Federal #11(8-28-18)

Sample Id:	**T-3 (12')**	Matrix:	Soil	Date Received:	09.21.18 11.06
Lab Sample Id:	599895-021	Date Collected:	09.20.18 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	09.22.18 09.30	Basis:	Wet Weight
Seq Number:	3064195				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3220**	24.8	mg/kg	09.22.18 17.12		5

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

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

QC Summary 599895

COG Operating LLC

GC Federal #11(8-28-18)

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064181 Matrix: Solid Date Prep: 09.21.18
MB Sample Id: 7662825-1-BLK LCS Sample Id: 7662825-1-BKS LCSD Sample Id: 7662825-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	261	104	258	103	90-110	1	20	mg/kg	09.22.18 02:33	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064195 Matrix: Solid Date Prep: 09.22.18
MB Sample Id: 7662828-1-BLK LCS Sample Id: 7662828-1-BKS LCSD Sample Id: 7662828-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	255	102	255	102	90-110	0	20	mg/kg	09.22.18 14:55	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064181 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599886-001 MS Sample Id: 599886-001 S MSD Sample Id: 599886-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	524	251	771	98	769	98	90-110	0	20	mg/kg	09.22.18 02:50	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064181 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599886-004 MS Sample Id: 599886-004 S MSD Sample Id: 599886-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	417	249	649	93	648	93	90-110	0	20	mg/kg	09.24.18 11:42	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064195 Matrix: Soil Date Prep: 09.22.18
Parent Sample Id: 599515-039 MS Sample Id: 599515-039 S MSD Sample Id: 599515-039 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.850	248	259	104	259	104	90-110	0	20	mg/kg	09.22.18 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

QC Summary 599895

COG Operating LLC

GC Federal #11(8-28-18)

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3064195 Matrix: Soil Date Prep: 09.22.18
Parent Sample Id: 599515-040 MS Sample Id: 599515-040 S MSD Sample Id: 599515-040 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.852	248	259	104	260	105	90-110	0	20	mg/kg	09.22.18 16:32	

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3064205 Matrix: Solid Date Prep: 09.21.18
MB Sample Id: 7662829-1-BLK LCS Sample Id: 7662829-1-BKS LCSD Sample Id: 7662829-1-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	<8.00	1000	983	98	929	93	70-135	6	20	mg/kg	09.21.18 11:21	
Diesel Range Organics	<8.13	1000	970	97	914	91	70-135	6	20	mg/kg	09.21.18 11:21	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	113		127		118		70-135	%	09.21.18 11:21
o-Terphenyl	112		115		104		70-135	%	09.21.18 11:21

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3064217 Matrix: Solid Date Prep: 09.21.18
MB Sample Id: 7662837-1-BLK LCS Sample Id: 7662837-1-BKS LCSD Sample Id: 7662837-1-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	<8.00	1000	954	95	1020	102	70-135	7	20	mg/kg	09.22.18 19:59	
Diesel Range Organics	<8.13	1000	996	100	1060	106	70-135	6	20	mg/kg	09.22.18 19:59	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		120		127		70-135	%	09.22.18 19:59
o-Terphenyl	103		124		119		70-135	%	09.22.18 19:59

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3064205 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599389-001 MS Sample Id: 599389-001 S MSD Sample Id: 599389-001 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	<7.98	997	938	94	951	95	70-135	1	20	mg/kg	09.21.18 12:20	
Diesel Range Organics	<8.10	997	960	96	977	98	70-135	2	20	mg/kg	09.21.18 12:20	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		124		70-135	%	09.21.18 12:20
o-Terphenyl	115		108		70-135	%	09.21.18 12:20

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 599895

COG Operating LLC

GC Federal #11(8-28-18)

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3064217 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599886-001 MS Sample Id: 599886-001 S MSD Sample Id: 599886-001 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	<7.99	999	866	87	875	88	70-135	1	20	mg/kg	09.22.18 20:55	
Diesel Range Organics	21.5	999	896	88	920	90	70-135	3	20	mg/kg	09.22.18 20:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		127		70-135	%	09.22.18 20:55
o-Terphenyl	121		123		70-135	%	09.22.18 20:55

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3064161 Matrix: Solid Date Prep: 09.21.18
MB Sample Id: 7662850-1-BLK LCS Sample Id: 7662850-1-BKS LCSD Sample Id: 7662850-1-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	0.0892	89	0.0891	88	70-130	0	35	mg/kg	09.21.18 23:53	
Toluene	<0.00200	0.100	0.0865	87	0.0847	84	70-130	2	35	mg/kg	09.21.18 23:53	
Ethylbenzene	<0.00200	0.100	0.0969	97	0.0942	93	70-130	3	35	mg/kg	09.21.18 23:53	
m,p-Xylenes	<0.00401	0.200	0.207	104	0.199	99	70-130	4	35	mg/kg	09.21.18 23:53	
o-Xylene	<0.00200	0.100	0.105	105	0.101	100	70-130	4	35	mg/kg	09.21.18 23:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	76		88		82		70-130	%	09.21.18 23:53
4-Bromofluorobenzene	112		126		128		70-130	%	09.21.18 23:53

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3064161 Matrix: Soil Date Prep: 09.21.18
Parent Sample Id: 599704-001 MS Sample Id: 599704-001 S MSD Sample Id: 599704-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0726	72	0.0688	69	70-130	5	35	mg/kg	09.22.18 00:33	X
Toluene	<0.00202	0.101	0.0504	50	0.0481	48	70-130	5	35	mg/kg	09.22.18 00:33	X
Ethylbenzene	<0.00202	0.101	0.0357	35	0.0336	34	70-130	6	35	mg/kg	09.22.18 00:33	X
m,p-Xylenes	<0.00404	0.202	0.0729	36	0.0698	35	70-130	4	35	mg/kg	09.22.18 00:33	X
o-Xylene	<0.00202	0.101	0.0380	38	0.0366	37	70-130	4	35	mg/kg	09.22.18 00:33	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		90		70-130	%	09.22.18 00:33
4-Bromofluorobenzene	140	**	152	**	70-130	%	09.22.18 00:33

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analysis Request of Chain of Custody Record

599695

CONCHO

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

Client Name: COG	**Site Manager:** Ike Tavarez
Project Name: GC Federal #11 (8-28-18)	
Project Location: (county, state) Lea County, New Mexico	**Project #:**
Invoice to: COG	
Receiving Laboratory: Xenco	**Sampler Signature:** Robert Grubbs Jr

Comments:

Run Deeper samples if TPH exceeds 1000 mg/kg.

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING 2018 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
	T-1 (1')	9/20/2018			X				X			1		X		X												X							
	T-1 (2')	9/20/2018			X				X			1		X		X												X							
	T-1 (4')	9/20/2018			X				X			1																X							
	T-1 (6')	9/20/2018			X				X			1																X							
	T-1 (8')	9/20/2018			X				X			1																X							
	T-1 (10')	9/20/2018			X				X			1																X							
	T-1 (12')	9/20/2018			X				X			1																X							
	T-1 (14')	9/20/2018			X				X			1																X							
	T-2 (1')	9/20/2018			X				X			1		X	X													X							
	T-2 (2')	9/20/2018			X				X			1		X	X													X							

Relinquished by: Robert Grubbs	Date: 9/21/18	Time: 1106	Received by: Bill Rb
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:

Date: 9-21-18 Time: 11:06

LAB USE ONLY

Sample Temperature 3.1°C RB 0.0

REMARKS:

[X] RUSH: Same Day 24 hr 48 hr 72 hr

[ ] Rush Charges Authorized

[ ] Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

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Analysis Request of Chain of Custody Record

599895

Page 2 of 3

CONCHO

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

Client Name: COG
Site Manager: Ike Tavarez

Project Name: GC Federal #11 (8-28-18)

Project Location: (county, state) Lea County, New Mexico
Project #:

Invoice to: COG

Receiving Laboratory: Xenco
Sampler Signature: Robert Grubbs Jr

Comments:
Run Deeper samples if TPH exceeds 1000 mg/kg.

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING (YEAR: 2018) DATE	TIME	MATRIX WATER	SOIL	PRESERVATIVE METHOD HCL	HNO_3	ICE	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	T-2 (4')	9/20/2018			X			X	1																X				
	T-2 (6')	9/20/2018			X			X	1																X				
	T-2 (8')	9/20/2018			X			X	1																X				
	T-2 (10')	9/20/2018			X			X	1																X				
	T-3 (1')	9/20/2018			X			X	1		X		X												X				
	T-3 (2')	9/20/2018			X			X	1		X		X												X				
	T-3 (4')	9/20/2018			X			X	1																X				
	T-3 (6')	9/20/2018			X			X	1																X				
	T-3 (8')	9/20/2018			X			X	1																X				
	T-3 (10')	9/20/2018			X			X	1																X				

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Robert [signature]	9/21/18	1106	[signature]	9-21-18	11:06
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY
Sample Temperature
3.1°c
RC 0.0

REMARKS:
[X] RUSH: Same Day 24 hr 48 hr (72 hr)
[ ] Rush Charges Authorized
[ ] Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: ____________

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Analysis Request of Chain of Custody Record

CONCHO

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

599995

Client Name: COG	**Site Manager:** Ike Tavarez
Project Name: GC Federal #11 (8-28-18)	
Project Location: (county, state) Lea County, New Mexico	**Project #:**
Invoice to: COG	
Receiving Laboratory: Xenco	**Sampler Signature:** Robert Grubbs Jr

Comments:

Run Deeper samples if TPH exceeds 1000 mg/kg.

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2018 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
	T-3 (12')	9/20/2018			X				X			1																X							

Relinquished by: Robert Grubbs Jr	Date: 9/21/18	Time: 1106	Received by: [signature]
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:

Date: 9-21-18 Time: 11:06

LAB USE ONLY

Sample Temperature 3.1 | 00 | 29

REMARKS:

- [X] RUSH: Same Day 24 hr 48 hr ~~72 hr~~
- [ ] Rush Charges Authorized
- [ ] Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 09/21/2018 11:06:00 AM

Work Order #: 599895

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.1
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 09/21/2018
Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 09/21/2018
Jessica Kramer