



[Sheldon L. Hitchcock]
[HSE Coordinator]

November 12, 2018

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

Ryan Mann
New Mexico State Land Office
2827 N. Dal Paso Suite 117
Hobbs, NM 88240

Re: Closure Letter
Redtail State Com #001H
API #: 30-025-40181
RP#: 1RP-4950
Unit Letter A Section 2, Township 23S, Range 32 E
Lea County, NM

Ms. Yu/Mr. Mann,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Redtail State Com #001H. This release occurred on January 30, 2018. Following the release an assessment of impacted soils was conducted. A remediation work plan was submitted to and subsequently approved by the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO). A copy of the approved work plan is attached in Appendix V.

BACKGROUND

The Redtail State Com #001H release is located in Unit Letter A, Section 2, Township 23 South and Range 32 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.3400154 North and -103.6390533 West.

On January 30, 2018, a hole in the water leg resulted in the release of approximately ten (10) barrels (bbls) of produced water. All of the fluid remained on location. A vacuum truck was able to recover approximately eight (8) bbls of oil.

Remediation activities were conducted in accordance with the approved work plan and NMOCD/NMSLO stipulations. The analytical results from the NMOCD and NMSLO stipulated confirmation soil sampling activities are summarized in the tables below. A site diagram of the excavated area is presented in Appendix I.

November 12, 2018

GROUNDWATER AND SITE RANKING

According New Mexico Office of the State Engineer groundwater in the project vicinity is approximately three-hundred and forty (340) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is zero (0) based on the following:

Depth to groundwater >100-feet
 Distance to surface water body >1000-feet
 Wellhead Protection Area >1000-feet

CONFIRMATION SOIL SAMPLING RESULTS

Sample ID	Sample Date	Depth (ft)	In Situ	Removed	Chloride (mg/kg)	Gasoline Range Hydrocarbons (mg/kg)	Diesel Range Organics (mg/kg)	Motor Oil Range Hydrocarbons (MRO) (mg/kg)	Total TPH (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)
Bttm-1 3'	10/5/2018	3	X		341	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199
Bttm-2 3'	10/5/2018	3	X		18.2	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200
Bttm-3 3'	10/5/2018	3	X		305	<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202
Bttm-4 3'	10/5/2018	3	X		292	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199
Bttm-5 3'	10/5/2018	3	X		576	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200
T-2/ T-3 3'	10/5/2018	3		X	712	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201
T-2/ T-3 3.5'	10/11/2018	3.5	X		114	-	-	-	-	-	-
SW-1	10/5/2018	N/A	X		77.3	<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202
SW-2	10/5/2018	N/A	X		417	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199
SW-3	10/5/2018	N/A	X		79.1	<14.9	<14.9	<14.9	<14.9	<0.00201	<0.00201
SW-4	10/5/2018	N/A	X		271	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201
SW-5	10/5/2018	N/A	X		288	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201
SW-6	10/5/2018	N/A	X		16.2	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200
SW-7	10/5/2018	N/A	X		6.85	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199
SW-8	10/5/2018	N/A	X		10.9	<14.9	<14.9	<14.9	<14.9	<0.00202	<0.00202
SW-9	10/5/2018	N/A	X		29.3	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201
SW-10	10/5/2018	N/A	X		<5.05	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199
SW-11	10/5/2018	N/A	X		27.3	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200
SW-12	10/5/2018	N/A	X		23.4	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200
SW-13	10/5/2018	N/A	X		11.3	15.4	<15.0	<15.0	15.4	<0.00201	<0.00201
SW-14	10/5/2018	N/A	X		465	15.9	<15.0	<15.0	15.9	<0.00199	<0.00199

(--) Analysis not requested

November 12, 2018

REMEDIAL ACTIONS

- The impacted area inside of the berms was excavated to depths from 3-feet to 3.5-feet BGS.
- The impacted area north of the bermed area was excavated to a depth of 3-feet BGS.
- Confirmation soil samples were taken from the bottom and sidewalls of the excavated area per NMOCD and NMSLO stipulations.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility
- Upon receipt of analytical results confirming that all impacted soil above NMOCD RRAL's was successfully removed the excavation was backfilled and contoured to match the surrounding location.

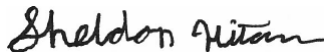
November 12, 2018

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 Redtail State Com #001H incident that occurred on January 30, 2018.

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

Sincerely,



Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

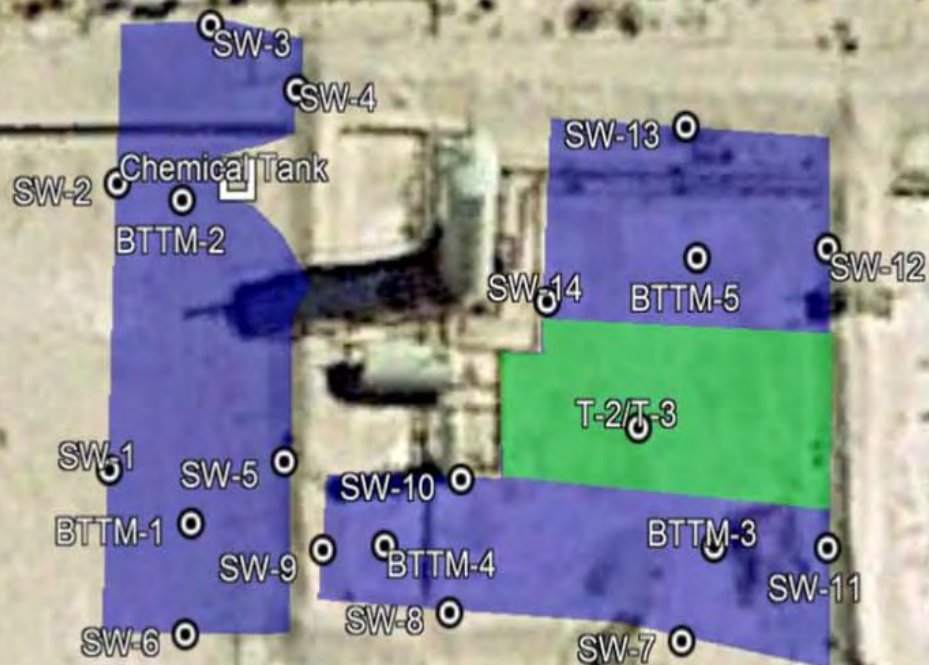
Enclosed:

- Appendix I: Site Diagram
- Appendix II: Groundwater Data
- Appendix III: Initial C-141 (Copy)
- Appendix IV: Final C-141
- Appendix V: Work Plan (Copy)
- Appendix VI: Analytical Reports and Chain-of-Custody Forms
- Appendix VII: Photographic Documentation

APPENDIX I

Legend

- 3' Excavation
- 3.5' Excavation
- Confirmation Sample Location



APPENDIX II



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02821	C	LE		2	2	3	14	22S	32E	627303	3584563*	5767	540	340	200
C 02275	CUB	LE		3	3	2	19	23S	33E	630843	3573557*	5968	650	400	250
C 02276	CUB	LE		3	1	4	19	23S	33E	630848	3573154*	6330	650	400	250
C 02216	CUB	LE		2	2	4	21	23S	32E	625035	3573261*	6363	585	400	185
C 02277	CUB	LE		2	3	4	20	23S	33E	632663	3572970*	7452	550	400	150

Average Depth to Water: **388 feet**

Minimum Depth: **340 feet**

Maximum Depth: **400 feet**

Record Count: 5

Basin/County Search:

County: Lea

UTM NAD83 Radius Search (in meters):

Easting (X): 628081

Northing (Y): 3578848

Radius: 8000

*UTM location was derived from PLSS - see Help

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

11/12/18 12:10 PM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER

APPENDIX III

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
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating, LLC (OGRID# 229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No.: 432-683-7443
Facility Name: REDTAIL STATE COM #001H	Facility Type: Battery
Surface Owner: State	Mineral Owner: State
API No.: 30-025-40181	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	2	23S	32E	330	North	660	East	Lea

Latitude: 32.340015 Longitude: -103.6390533 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 10 bbls PW	Volume Recovered: 8 bbls PW
Source of Release: Fittings/Connections	Date and Hour of Occurrence: 1/30/2018	Date and Hour of Discovery: 1/30/2018 11:00 AM
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED

By Olivia Yu at 3:36 pm, Feb 02, 2018

Describe Cause of Problem and Remedial Action Taken.*

This release was caused by a hole in the water leg. The water leg will be replaced.

Describe Area Affected and Cleanup Action Taken.*

The release remained within the unlined bermed containment. A vacuum truck was dispatched to recover all freestanding fluids. Concho will have the spill area evaluated for 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.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: 	OIL CONSERVATION DIVISION	
	Approved by Environmental Specialist: 	
Printed Name: Dakota Neel	Approval Date: 2/2/2018	Expiration Date:
Title: HSE Coordinator	Conditions of Approval: see attached directive	Attached ☒
E-mail Address dneel2@concho.com		
Date: 1/31/2018	Phone: 575-746-2010	

* Attach Additional Sheets If Necessary

1RP-4950

nOY1803356383

pOY1803356624

APPENDIX IV

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
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017
Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: COG Operating, LLC (OGRID# 229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No.: 432-683-7443
Facility Name: Redtail State Com #001H	Facility Type: Tank Battery
Surface Owner: State	Mineral Owner: State
API No.: 30-025-40181	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	2	23S	32E	330	N	660	E	Lea

Latitude: 32.340015 Longitude: -103.6390533 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 10bbbls	Volume Recovered: 8bbbls
Source of Release: Water Leg	Date and Hour of Occurrence: 1/30/2018	Date and Hour of Discovery: 1/30/2018 11:00am
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☐ No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.* Failure of the water leg resulted in the release. The water leg was replaced.		
Describe Area Affected and Cleanup Action Taken.* All of the fluid remained on the location. A vacuum truck was utilized to recover free standing fluids. COG had the area evaluated. The impacted area was evaluated. A remediation work plan was drafted and subsequently approved by NMOCD and NMSLO. The remediation was carried out in accordance with the approved work plan.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.		
Signature: <i>Sheldon Hitchcock</i>		OIL CONSERVATION DIVISION
Printed Name: Sheldon L. Hitchcock		Approved by Environmental Specialist: <i>Bethany Hall</i>
Title: HSE Coordinator	Approval Date: 11/09/2022	Expiration Date: N/A
E-mail Address: slhitchcock@concho.com	Conditions of Approval:	Attached ☐
Date: 11/12/2018	Phone: 575-746-2010	none

* Attach Additional Sheets If Necessary

APPENDIX V

**APPROVED****By Olivia Yu at 3:24 pm, Jul 26, 2018**

NMOCD approves of the proposed additional delineation to be completed for the area represented by T-3 in conjunction with proposed remediation for 1RP-4950. Confirmation sidewall and bottom samples required for each area with different depths of excavation.

June 22, 2018

Olivia Yu
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 1
1625 N. French Drive
Hobbs, New Mexico 88240

Ryan Mann
New Mexico State Land Office
2827 N. Dal Paso Suite 117
Hobbs, New Mexico 88240
rmann@slo.state.nm.us

Re: Soil Investigation Summary and Proposed Remediation Workplan
Redtail State COM #001H (1RP-4950)
GPS: N 32.340015 W 103.639053
Unit Letter "A", Section 2, Township 23 South, Range 32 East, NMPM
Lea County, New Mexico

Dear Ms. Yu and Mr. Mann,

2M Environmental Services, LLC. (2M), on behalf of COG Operating, LLC. (Concho), has prepared this Soil Investigation Summary and Proposed Remediation Workplan (Workplan) for the Redtail State COM #001H Release Site (Release Site). The purpose of this Workplan is to propose remediation activities designed to advance the Redtail State COM #001H Release Site toward a New Mexico Oil and Conservation District (NMOCD) approved Site Closure Status. The legal description of the Release Site is Unit Letter "A", Section 2, Township 23 South, Range 32 East, in Lea County, New Mexico. The subject property is administered by the New Mexico State Land Office (NMSLO). The GPS coordinates for the site are N 32.340015 W 103.639053. A Site Location Map and Site Detail and Soil Sample Locations Map are provided as Figure 1 and Figure 2, respectively.

On January 30, 2018, a produced water release occurred at the Redtail State COM #001H. The release was the result of a hole developing in the water leg, which resulted in the release of produced water within the unlined bermed containment. On January 30, 2018, Concho submitted a Release Notification

and Corrective Action Form (Form C-141) was submitted to the NMOCD District 1 Office located in Hobbs, New Mexico and the release was assigned the incident number 1RP-4950. The release was reported as approximately ten (10) barrels of produced water released with approximately eight (8) barrels of produced water recovered, resulting in a net loss of approximately two (2) barrels of produced water. A copy of the NMOCD Release Notification and Corrective Action Form C-141 is attached to this Workplan.

A groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) did not identify the average depth to groundwater information in Section 2, Township 23 South, Range 32 East. A reference map utilized by the NMOCD Hobbs District Office indicates groundwater should be encountered at approximately four hundred seventy-five (475) feet below ground surface (bgs). Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion. No water wells were observed within one-thousand feet of the Release Site. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion. No surface water was observed within one thousand (1,000) feet of the release. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

Based on the NMOCD Site Classification Criteria, the Release Site remediation levels are 10 mg/Kg for benzene, 50 mg/Kg for benzene, toluene, ethylbenzene and xylenes (BTEX) and 5,000 mg/Kg for total petroleum hydrocarbons (TPH). Chloride remediation levels for the Release Site will be 600 mg/Kg, per NMOCD request.

On March 1, 2018, 2M, on behalf of Concho, utilized a hand auger and/or a backhoe to collect six (6) delineation soil samples (T-1 @ 1', T-1 @ 2', T-2 @ 1', T-2 @ 2', T-3 @ 1', and T-3 @ 2') from the stained surface soil. In addition to the soil samples described above, four (4) soil samples (North @ 1', East @ 1', West @ 1', and South @ 1') were collected utilizing a hand auger and/or backhoe approximately five (5) feet from the outer perimeter of the stained surface soil. Analytical results are provided as an attachment (Table 1 Concentrations of Benzene, BTEX, TPH, and Chloride in Soil).

Based on the analytical results of the soil samples collected on March 1, 2018, Concho proposes the following field activities designed to remediate the Redtail State COM #001H:

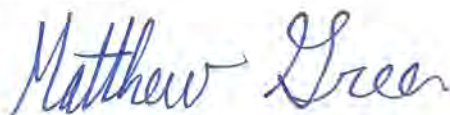
- Utilizing a backhoe, the area represented by sample point T-1 will be aesthetically addressed.
- The area represented by sample point T-2 will be excavated to approximately one and a half (1.5) feet bgs. One (1) confirmation soil sample will be collected from the excavated area and submitted for chloride analysis. If analytical results indicate chloride concentration are above 600 mg/Kg then the area will be excavated to a depth of two (2) feet bgs.
- Concurrently with excavation activities, the areas represented by sample point T-3 and North @ 1' will be vertically and horizontally delineated until confirmation soil samples indicate chloride concentrations are below 600 mg/Kg.
- Due to safety concerns, excavation activities inside the earthen firewall of the battery will be conducted in a manner that protects the structural integrity of the production equipment.
- Excavated soil will be temporarily stockpiled on a plastic liner adjacent to the excavation pending transport under manifest to a NMOCD approved disposal facility.
- Concho will backfill the excavation with locally purchased non-impacted "like" soil or caliche.

- Prepare and submit a "Remediation Summary and Site Closure Request" to the NMOCD and NMSLO.

Concho is prepared to begin the activities outlined in this Proposed Remediation Workplan on NMOCD and NMSLO approval.

If you have any questions, or if additional information is required, please feel free to call me at 432-614-6793 (office) or 432-230-3763 (cell).

Thank you,

A handwritten signature in blue ink that reads "Matthew Green". The signature is written in a cursive, flowing style.

Matthew Green, P.G.
President
2M Environmental Services, LLC.

Attachments:

Figure 1 - Site Location Map
Figure 2 - Site Detail and Soil Sample Locations Map
Table 1 - Concentrations of Benzene, BTEX, TPH and Chloride in Soil
Laboratory Analytical Results
Release Notification and Corrective Action (Form C-141)

cc: File



LEGEND:



Native Grassland

2000 1000 0 1000 2000



Distance in Feet

Figure 1

Site Location Map
COG Operating LLCRedtail State COM #001H Tank Battery
Lea County, TX

Scale: 1" = 2000

CAD By: JR

Checked By: MC

Date: March 18, 2018

Lat. N 32.340015°, Long. W 103.6390533°



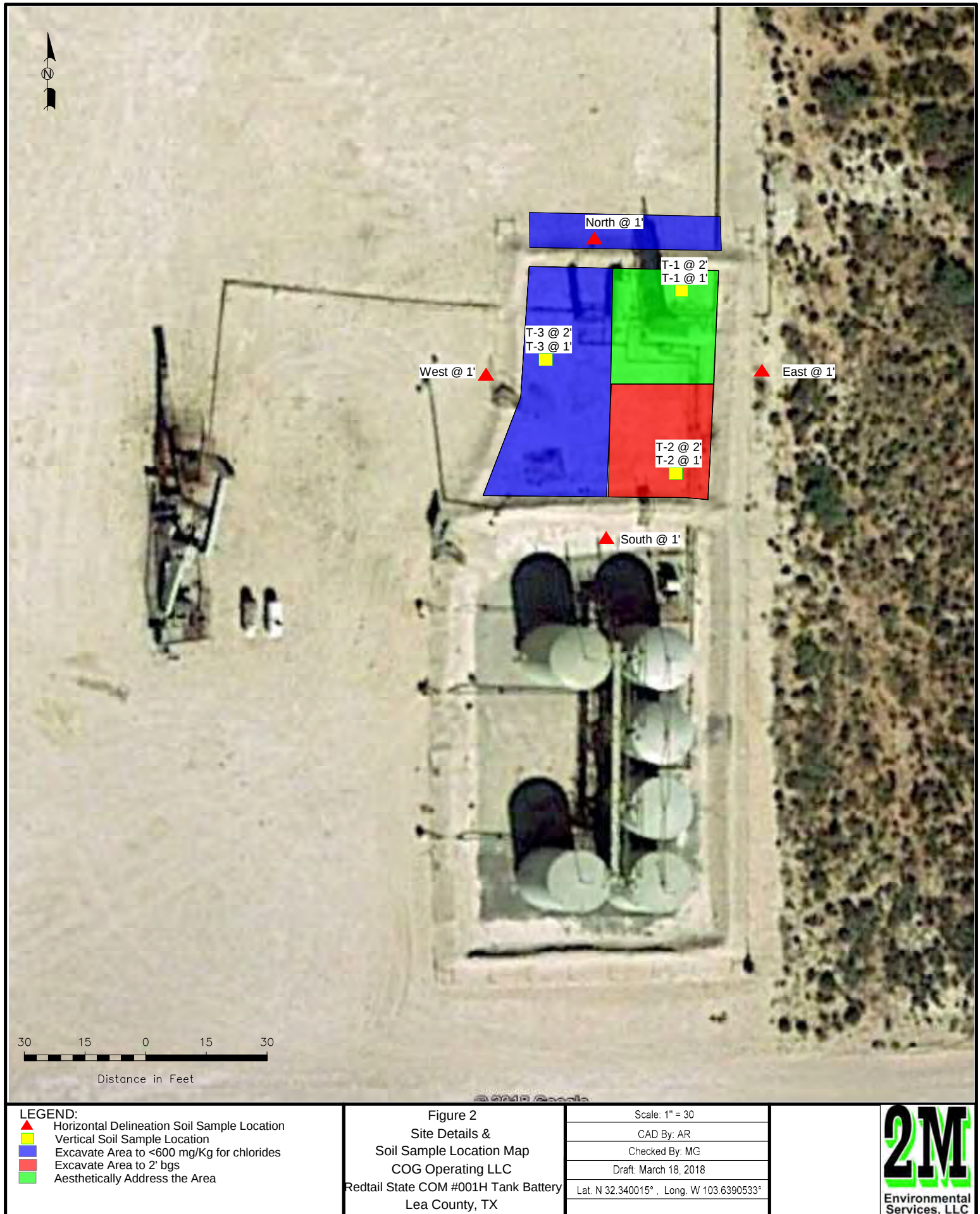


TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL

COG OPERATING, LLC

REDTAIL STATE COM #001H RELEASE SITE

LEA COUNTY, NEW MEXICO

All concentrations are reported in mg/Kg

SAMPLE LOCATION	SAMPLE DATE	METHODS: SW 846-8021B						METHOD: SW 8015M				E 300.1	
		BENZENE	TOLUENE	ETHYL-BENZENE	m, p - XYLENES	o - XYLENE	TOTAL XYLENES	TOTAL BTEX	TPH GRO C ₆ -C ₁₂	TPH DRO C ₁₂ -C ₂₈	TPH ORO C ₂₈ -C ₃₅	TOTAL TPH C ₆ -C ₃₅	CHLORIDE
Limits		10						50				5,000	600
North @ 1'	3/1/2018	<0.00199	<0.00199	<0.00199	<0.00398	<0.00199	<0.00398	<0.00398	<15.0	31.1	<15.0	31.1	998
East @ 1'	3/1/2018	<0.00200	<0.00200	<0.00200	<0.00399	<0.00200	<0.00399	<0.00399	<15.0	<15.0	<15.0	<15.0	26.5
West @ 1'	3/1/2018	<0.00201	<0.00201	<0.00201	<0.00402	<0.00201	<0.00402	<0.00402	<15.0	<15.0	<15.0	<15.0	233
T-2 @ 1'	3/1/2008	<0.00200	<0.00200	<0.00200	<0.00401	<0.00200	<0.00401	<0.00401	<15.0	<15.0	<15.0	<15.0	1,310
T-2 @ 2'	3/1/2018	<0.00200	<0.00200	<0.00200	<0.00401	<0.00200	<0.00401	<0.00401	<14.9	<14.9	<14.9	<14.9	70.5
T-3 @ 1'	3/1/2018	<0.00199	<0.00199	<0.00199	<0.00398	<0.00199	<0.00398	<0.00398	<15.0	<15.0	<15.0	<15.0	1,140
T-3 @ 2'	3/1/2018	<0.00200	<0.00200	<0.00200	<0.00401	<0.00200	<0.00401	<0.00401	<14.9	<14.9	<14.9	<14.9	1,480
T-1 @ 1'	3/1/2018	<0.00200	<0.00200	<0.00200	<0.00401	<0.00200	<0.00401	<0.00401	<15.0	19.1	<15.0	19.1	419
T-1 @ 2'	3/1/2018	<0.00202	<0.00202	<0.00202	<0.00403	<0.00202	<0.00403	<0.00403	<15.0	<15.0	<15.0	<15.0	585
South @ 1'	3/1/2018	<0.00201	<0.00201	<0.00201	<0.00402	<0.00201	<0.00402	<0.00402	<15.0	<15.0	<15.0	<15.0	<4.95



Certificate of Analysis Summary 578121

2M Enviromental Services LLC, Odessa, TX

Project Name: COG Redtail State COM #001H



Project Id:

Contact: Matt Green

Project Location: Lea County NM

Date Received in Lab: Fri Mar-02-18 04:41 pm

Report Date: 13-MAR-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	578121-001	578121-002	578121-003	578121-004	578121-005	578121-006
	<i>Field Id:</i>	North @ 1'	East @ 1'	West @ 1'	T-2 @ 1'	T-2 @ 2'	T-3 @ 1'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-01-18 09:05	Mar-01-18 09:10	Mar-01-18 09:15	Mar-01-18 10:10	Mar-01-18 10:15	Mar-01-18 10:40
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-09-18 17:00	Mar-09-18 17:00	Mar-09-18 17:00	Mar-09-18 17:00	Mar-12-18 08:00	Mar-09-18 17:00
	<i>Analyzed:</i>	Mar-10-18 07:08	Mar-10-18 07:27	Mar-10-18 07:45	Mar-10-18 08:41	Mar-12-18 09:46	Mar-10-18 09:18
	<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	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00402 0.00402	<0.00401 0.00401	<0.00401 0.00401	<0.00398 0.00398
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	Mar-12-18 11:40	Mar-12-18 11:40	Mar-12-18 11:40	Mar-12-18 11:40	Mar-12-18 11:40	Mar-12-18 11:40
	<i>Analyzed:</i>	Mar-12-18 19:26	Mar-13-18 03:28	Mar-13-18 03:37	Mar-13-18 03:45	Mar-13-18 03:54	Mar-13-18 04:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		998 4.96	26.5 4.99	233 4.96	1310 5.00	70.5 4.93	1140 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Mar-10-18 16:00	Mar-10-18 16:00	Mar-10-18 16:00	Mar-10-18 16:00	Mar-10-18 16:00	Mar-10-18 16:00
	<i>Analyzed:</i>	Mar-11-18 12:25	Mar-11-18 13:27	Mar-11-18 13:47	Mar-11-18 14:07	Mar-11-18 14:26	Mar-11-18 14:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Diesel Range Organics (DRO)		31.1 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Total TPH		31.1 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0

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

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 578121

2M Enviromental Services LLC, Odessa, TX

Project Name: COG Redtail State COM #001H



Project Id:

Contact: Matt Green

Project Location: Lea County NM

Date Received in Lab: Fri Mar-02-18 04:41 pm

Report Date: 13-MAR-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	578121-007	578121-008	578121-009	578121-010		
	<i>Field Id:</i>	T-3 @ 2'	T-1 @ 1'	T-1 @ 2'	South @1'		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Mar-01-18 10:45	Mar-01-18 11:20	Mar-01-18 11:25	Mar-01-18 11:45		
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-09-18 17:00	Mar-09-18 17:00	Mar-09-18 17:00	Mar-09-18 17:00		
	<i>Analyzed:</i>	Mar-10-18 09:43	Mar-10-18 10:01	Mar-10-18 10:19	Mar-10-18 10:37		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201		
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201		
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201		
m,p-Xylenes		<0.00401 0.00401	<0.00401 0.00401	<0.00403 0.00403	<0.00402 0.00402		
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201		
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201		
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201		
Chloride by EPA 300	<i>Extracted:</i>	Mar-12-18 11:40	Mar-12-18 11:40	Mar-12-18 11:40	Mar-12-18 11:40		
	<i>Analyzed:</i>	Mar-13-18 04:29	Mar-13-18 04:38	Mar-13-18 04:47	Mar-13-18 04:56		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		1480 24.8	419 4.92	585 4.92	<4.95 4.95		
TPH By SW8015 Mod	<i>Extracted:</i>	Mar-10-18 16:00	Mar-10-18 16:00	Mar-10-18 16:00	Mar-10-18 16:00		
	<i>Analyzed:</i>	Mar-11-18 15:08	Mar-11-18 15:30	Mar-11-18 15:50	Mar-11-18 16:10		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Diesel Range Organics (DRO)		<14.9 14.9	19.1 15.0	<15.0 15.0	<15.0 15.0		
Oil Range Hydrocarbons (ORO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Total TPH		<14.9 14.9	19.1 15.0	<15.0 15.0	<15.0 15.0		

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

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Version: 1.9%

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 578121

for

2M Enviromental Services LLC

Project Manager: Matt Green
COG Redtail State COM #001H

13-MAR-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)



13-MAR-18

Project Manager: **Matt Green**
2M Enviromental Services LLC
1219 W University Blvd
Odessa, TX 79764

Reference: XENCO Report No(s): **578121**
COG Redtail State COM #001H
Project Address: Lea County NM

Matt Green:

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) 578121. 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. 578121 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 Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

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**Sample Cross Reference 578121****2M Enviromental Services LLC, Odessa, TX**

COG Redtail State COM #001H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North @ 1'	S	03-01-18 09:05		578121-001
East @ 1'	S	03-01-18 09:10		578121-002
West @ 1'	S	03-01-18 09:15		578121-003
T-2 @ 1'	S	03-01-18 10:10		578121-004
T-2 @ 2'	S	03-01-18 10:15		578121-005
T-3 @ 1'	S	03-01-18 10:40		578121-006
T-3 @ 2'	S	03-01-18 10:45		578121-007
T-1 @ 1'	S	03-01-18 11:20		578121-008
T-1 @ 2'	S	03-01-18 11:25		578121-009
South @1'	S	03-01-18 11:45		578121-010

**CASE NARRATIVE****Client Name: 2M Enviromental Services LLC****Project Name: COG Redtail State COM #001H**

Project ID:
Work Order Number(s): 578121

Report Date: 13-MAR-18
Date Received: 03/02/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3043352 BTEX by EPA 8021B

Lab Sample ID 578121-007 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 578121-001, -002, -003, -004, -006, -007, -008, -009, -010.

The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

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

Batch: LBA-3043503 BTEX by EPA 8021B

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

Batch: LBA-3043530 Chloride by EPA 300

Lab Sample ID 578297-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 578121-001, -002, -003, -004, -005, -006, -007, -008, -009, -010.

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



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: **North @ 1'**

Matrix: Soil

Date Received: 03.02.18 16.41

Lab Sample Id: 578121-001

Date Collected: 03.01.18 09.05

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 11.40

Basis: Wet Weight

Seq Number: 3043530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	998	4.96	mg/kg	03.12.18 19.26		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.10.18 16.00

Basis: Wet Weight

Seq Number: 3043517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 12.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	31.1	15.0	mg/kg	03.11.18 12.25		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 12.25	U	1
Total TPH	PHC635	31.1	15.0	mg/kg	03.11.18 12.25		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	03.11.18 12.25	
o-Terphenyl	84-15-1	96	%	70-135	03.11.18 12.25	



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: **North @ 1'**

Matrix: Soil

Date Received: 03.02.18 16.41

Lab Sample Id: 578121-001

Date Collected: 03.01.18 09.05

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.10.18 07.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.10.18 07.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.10.18 07.08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.10.18 07.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.10.18 07.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.10.18 07.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.10.18 07.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	03.10.18 07.08		
1,4-Difluorobenzene	540-36-3	79	%	70-130	03.10.18 07.08		



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: East @ 1'
Lab Sample Id: 578121-002

Matrix: Soil
Date Collected: 03.01.18 09.10

Date Received: 03.02.18 16.41

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 11.40

Basis: Wet Weight

Seq Number: 3043530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	26.5	4.99	mg/kg	03.13.18 03.28		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.10.18 16.00

Basis: Wet Weight

Seq Number: 3043517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 13.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.11.18 13.27	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 13.27	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.11.18 13.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	84	%	70-135	03.11.18 13.27		
o-Terphenyl	84-15-1	82	%	70-135	03.11.18 13.27		



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: East @ 1'
Lab Sample Id: 578121-002

Matrix: Soil
Date Collected: 03.01.18 09.10

Date Received: 03.02.18 16.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.10.18 07.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.10.18 07.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.10.18 07.27	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.10.18 07.27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.10.18 07.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.10.18 07.27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.10.18 07.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	03.10.18 07.27		
1,4-Difluorobenzene	540-36-3	74	%	70-130	03.10.18 07.27		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: **West @ 1'**

Matrix: Soil

Date Received: 03.02.18 16.41

Lab Sample Id: 578121-003

Date Collected: 03.01.18 09.15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 11.40

Basis: Wet Weight

Seq Number: 3043530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	233	4.96	mg/kg	03.13.18 03.37		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.10.18 16.00

Basis: Wet Weight

Seq Number: 3043517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 13.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.11.18 13.47	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 13.47	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.11.18 13.47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-135	03.11.18 13.47	
o-Terphenyl	84-15-1	79	%	70-135	03.11.18 13.47	



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: **West @ 1'**

Matrix: Soil

Date Received: 03.02.18 16.41

Lab Sample Id: 578121-003

Date Collected: 03.01.18 09.15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.10.18 07.45	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.10.18 07.45	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.10.18 07.45	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.10.18 07.45	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.10.18 07.45	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.10.18 07.45	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.10.18 07.45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	03.10.18 07.45		
1,4-Difluorobenzene	540-36-3	90	%	70-130	03.10.18 07.45		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-2 @ 1'
Lab Sample Id: 578121-004

Matrix: Soil
Date Collected: 03.01.18 10.10

Date Received: 03.02.18 16.41

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 11.40

Basis: Wet Weight

Seq Number: 3043530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1310	5.00	mg/kg	03.13.18 03.45		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.10.18 16.00

Basis: Wet Weight

Seq Number: 3043517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 14.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.11.18 14.07	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 14.07	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.11.18 14.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	03.11.18 14.07	
o-Terphenyl	84-15-1	103	%	70-135	03.11.18 14.07	



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-2 @ 1'
Lab Sample Id: 578121-004

Matrix: Soil
Date Collected: 03.01.18 10.10

Date Received: 03.02.18 16.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.10.18 08.41	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.10.18 08.41	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.10.18 08.41	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.10.18 08.41	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.10.18 08.41	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.10.18 08.41	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.10.18 08.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	70-130	03.10.18 08.41		
1,4-Difluorobenzene	540-36-3	87	%	70-130	03.10.18 08.41		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-2 @ 2'
Lab Sample Id: 578121-005

Matrix: Soil
Date Collected: 03.01.18 10.15

Date Received: 03.02.18 16.41

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3043530

Prep Method: E300P

% Moisture:

Date Prep: 03.12.18 11.40

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.5	4.93	mg/kg	03.13.18 03.54		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3043517

Prep Method: TX1005P

% Moisture:

Date Prep: 03.10.18 16.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.11.18 14.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.11.18 14.26	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	03.11.18 14.26	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.11.18 14.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.11.18 14.26	
o-Terphenyl	84-15-1	95	%	70-135	03.11.18 14.26	



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-2 @ 2'
Lab Sample Id: 578121-005

Matrix: Soil
Date Collected: 03.01.18 10.15

Date Received: 03.02.18 16.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.12.18 08.00

Basis: Wet Weight

Seq Number: 3043503

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.12.18 09.46	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.12.18 09.46	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.12.18 09.46	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.12.18 09.46	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.12.18 09.46	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.12.18 09.46	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.12.18 09.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	89	%	70-130	03.12.18 09.46		
4-Bromofluorobenzene	460-00-4	118	%	70-130	03.12.18 09.46		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-3 @ 1'
Lab Sample Id: 578121-006

Matrix: Soil
Date Collected: 03.01.18 10.40

Date Received: 03.02.18 16.41

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3043530

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 03.12.18 11.40

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1140	5.00	mg/kg	03.13.18 04.20		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3043517

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 03.10.18 16.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 14.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.11.18 14.48	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 14.48	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.11.18 14.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	03.11.18 14.48		
o-Terphenyl	84-15-1	99	%	70-135	03.11.18 14.48		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-3 @ 1'
Lab Sample Id: 578121-006

Matrix: Soil
Date Collected: 03.01.18 10.40

Date Received: 03.02.18 16.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.10.18 09.18	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.10.18 09.18	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.10.18 09.18	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.10.18 09.18	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.10.18 09.18	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.10.18 09.18	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.10.18 09.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	03.10.18 09.18		
1,4-Difluorobenzene	540-36-3	80	%	70-130	03.10.18 09.18		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-3 @ 2'
Lab Sample Id: 578121-007

Matrix: Soil
Date Collected: 03.01.18 10.45

Date Received: 03.02.18 16.41

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3043530

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 03.12.18 11.40

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1480	24.8	mg/kg	03.13.18 04.29		5

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3043517

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 03.10.18 16.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.11.18 15.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.11.18 15.08	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	03.11.18 15.08	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.11.18 15.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.11.18 15.08	
o-Terphenyl	84-15-1	96	%	70-135	03.11.18 15.08	



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-3 @ 2'
Lab Sample Id: 578121-007

Matrix: Soil
Date Collected: 03.01.18 10.45

Date Received: 03.02.18 16.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.10.18 09.43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.10.18 09.43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.10.18 09.43	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.10.18 09.43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.10.18 09.43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.10.18 09.43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.10.18 09.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	124	%	70-130	03.10.18 09.43		
1,4-Difluorobenzene	540-36-3	79	%	70-130	03.10.18 09.43		



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-1 @ 1'
Lab Sample Id: 578121-008

Matrix: Soil
Date Collected: 03.01.18 11.20

Date Received: 03.02.18 16.41

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 11.40

Basis: Wet Weight

Seq Number: 3043530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	419	4.92	mg/kg	03.13.18 04.38		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.10.18 16.00

Basis: Wet Weight

Seq Number: 3043517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 15.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	19.1	15.0	mg/kg	03.11.18 15.30		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 15.30	U	1
Total TPH	PHC635	19.1	15.0	mg/kg	03.11.18 15.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.11.18 15.30	
o-Terphenyl	84-15-1	95	%	70-135	03.11.18 15.30	



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-1 @ 1'
Lab Sample Id: 578121-008

Matrix: Soil
Date Collected: 03.01.18 11.20

Date Received: 03.02.18 16.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.10.18 10.01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.10.18 10.01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.10.18 10.01	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.10.18 10.01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.10.18 10.01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.10.18 10.01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.10.18 10.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	80	%	70-130	03.10.18 10.01		
4-Bromofluorobenzene	460-00-4	112	%	70-130	03.10.18 10.01		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-1 @ 2'
Lab Sample Id: 578121-009

Matrix: Soil
Date Collected: 03.01.18 11.25

Date Received: 03.02.18 16.41

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3043530

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 03.12.18 11.40

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	585	4.92	mg/kg	03.13.18 04.47		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3043517

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 03.10.18 16.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 15.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.11.18 15.50	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 15.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.11.18 15.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	03.11.18 15.50		
o-Terphenyl	84-15-1	99	%	70-135	03.11.18 15.50		



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: T-1 @ 2'
Lab Sample Id: 578121-009

Matrix: Soil
Date Collected: 03.01.18 11.25

Date Received: 03.02.18 16.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.10.18 10.19	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.10.18 10.19	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.10.18 10.19	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.10.18 10.19	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.10.18 10.19	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.10.18 10.19	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.10.18 10.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	03.10.18 10.19		
1,4-Difluorobenzene	540-36-3	85	%	70-130	03.10.18 10.19		



Certificate of Analytical Results 578121

2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: **South @1'**

Matrix: Soil

Date Received: 03.02.18 16.41

Lab Sample Id: 578121-010

Date Collected: 03.01.18 11.45

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.12.18 11.40

Basis: Wet Weight

Seq Number: 3043530

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	03.13.18 04.56	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.10.18 16.00

Basis: Wet Weight

Seq Number: 3043517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.11.18 16.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.11.18 16.10	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.11.18 16.10	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.11.18 16.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-135	03.11.18 16.10	
o-Terphenyl	84-15-1	81	%	70-135	03.11.18 16.10	



Certificate of Analytical Results 578121



2M Enviromental Services LLC, Odessa, TX

COG Redtail State COM #001H

Sample Id: **South @1'**

Matrix: Soil

Date Received: 03.02.18 16.41

Lab Sample Id: 578121-010

Date Collected: 03.01.18 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.09.18 17.00

Basis: Wet Weight

Seq Number: 3043352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.10.18 10.37	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.10.18 10.37	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.10.18 10.37	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.10.18 10.37	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.10.18 10.37	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.10.18 10.37	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.10.18 10.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	79	%	70-130	03.10.18 10.37		
4-Bromofluorobenzene	460-00-4	114	%	70-130	03.10.18 10.37		



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



2M Enviromental Services LLC

COG Redtail State COM #001H

Analytical Method: Chloride by EPA 300

Seq Number: 3043530

MB Sample Id: 7640599-1-BLK

Matrix: Solid

LCS Sample Id: 7640599-1-BKS

Prep Method: E300P

Date Prep: 03.12.18

LCSD Sample Id: 7640599-1-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	271	108	267	107	90-110	1	20	mg/kg	03.12.18 19:16	

Analytical Method: Chloride by EPA 300

Seq Number: 3043530

Parent Sample Id: 578121-001

Matrix: Soil

MS Sample Id: 578121-001 S

Prep Method: E300P

Date Prep: 03.12.18

MSD Sample Id: 578121-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	998	248	1180	73	1260	106	90-110	7	20	mg/kg	03.12.18 19:31	X

Analytical Method: Chloride by EPA 300

Seq Number: 3043530

Parent Sample Id: 578297-002

Matrix: Soil

MS Sample Id: 578297-002 S

Prep Method: E300P

Date Prep: 03.12.18

MSD Sample Id: 578297-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	242	97	257	103	90-110	6	20	mg/kg	03.13.18 05:13	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3043517

MB Sample Id: 7640555-1-BLK

Matrix: Solid

LCS Sample Id: 7640555-1-BKS

Prep Method: TX1005P

Date Prep: 03.10.18

LCSD Sample Id: 7640555-1-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)	<15.0	1000	939	94	1050	105	70-135	11	35	mg/kg	03.11.18 11:45	
Diesel Range Organics (DRO)	<15.0	1000	830	83	930	93	70-135	11	35	mg/kg	03.11.18 11:45	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	84		85		107		70-135	%	03.11.18 11:45
o-Terphenyl	91		85		99		70-135	%	03.11.18 11:45

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

$[D] = 100 * (C-A) / B$
 $RPD = 200 * | (C-E) / (C+E) |$
 $[D] = 100 * (C) / [B]$

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



2M Enviromental Services LLC

COG Redtail State COM #001H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3043517

Parent Sample Id: 578121-001

Matrix: Soil

MS Sample Id: 578121-001 S

Prep Method: TX1005P

Date Prep: 03.10.18

MSD Sample Id: 578121-001 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)	<15.0	999	893	89	877	88	70-135	2	35	mg/kg	03.11.18 12:49	
Diesel Range Organics (DRO)	31.1	999	802	77	801	77	70-135	0	35	mg/kg	03.11.18 12:49	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		96		70-135	%	03.11.18 12:49
o-Terphenyl	84		81		70-135	%	03.11.18 12:49

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043352

MB Sample Id: 7640531-1-BLK

Matrix: Solid

LCS Sample Id: 7640531-1-BKS

Prep Method: SW5030B

Date Prep: 03.09.18

LCSD Sample Id: 7640531-1-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	0.0998	0.0866	87	0.0838	84	70-130	3	35	mg/kg	03.10.18 03:08	
Toluene	<0.00200	0.0998	0.0805	81	0.0883	88	70-130	9	35	mg/kg	03.10.18 03:08	
Ethylbenzene	<0.00200	0.0998	0.0830	83	0.0907	91	70-130	9	35	mg/kg	03.10.18 03:08	
m,p-Xylenes	<0.00399	0.200	0.161	81	0.176	88	70-130	9	35	mg/kg	03.10.18 03:08	
o-Xylene	<0.00200	0.0998	0.0827	83	0.0906	91	70-130	9	35	mg/kg	03.10.18 03:08	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		93		111		70-130	%	03.10.18 03:08
4-Bromofluorobenzene	108		114		127		70-130	%	03.10.18 03:08

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043503

MB Sample Id: 7640672-1-BLK

Matrix: Solid

LCS Sample Id: 7640672-1-BKS

Prep Method: SW5030B

Date Prep: 03.12.18

LCSD Sample Id: 7640672-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0909	90	0.0883	88	70-130	3	35	mg/kg	03.12.18 06:55	
Toluene	<0.00202	0.101	0.0972	96	0.0942	94	70-130	3	35	mg/kg	03.12.18 06:55	
Ethylbenzene	<0.00202	0.101	0.111	110	0.109	109	70-130	2	35	mg/kg	03.12.18 06:55	
m,p-Xylenes	<0.00403	0.202	0.219	108	0.214	107	70-130	2	35	mg/kg	03.12.18 06:55	
o-Xylene	<0.00202	0.101	0.106	105	0.105	105	70-130	1	35	mg/kg	03.12.18 06:55	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		86		84		70-130	%	03.12.18 06:55
4-Bromofluorobenzene	110		119		118		70-130	%	03.12.18 06:55

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

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



2M Enviromental Services LLC

COG Redtail State COM #001H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043352

Parent Sample Id: 578121-007

Matrix: Soil

MS Sample Id: 578121-007 S

Prep Method: SW5030B

Date Prep: 03.09.18

MSD Sample Id: 578121-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0662	66	0.0570	56	70-130	15	35	mg/kg	03.10.18 03:44	X
Toluene	<0.00201	0.100	0.0678	68	0.0545	54	70-130	22	35	mg/kg	03.10.18 03:44	X
Ethylbenzene	<0.00201	0.100	0.0680	68	0.0533	53	70-130	24	35	mg/kg	03.10.18 03:44	X
m,p-Xylenes	<0.00402	0.201	0.132	66	0.103	51	70-130	25	35	mg/kg	03.10.18 03:44	X
o-Xylene	<0.00201	0.100	0.0670	67	0.0530	52	70-130	23	35	mg/kg	03.10.18 03:44	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		89		70-130	%	03.10.18 03:44
4-Bromofluorobenzene	121		114		70-130	%	03.10.18 03:44

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043503

Parent Sample Id: 578649-001

Matrix: Soil

MS Sample Id: 578649-001 S

Prep Method: SW5030B

Date Prep: 03.12.18

MSD Sample Id: 578649-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0584	59	0.0656	66	70-130	12	35	mg/kg	03.12.18 07:34	X
Toluene	<0.00199	0.0996	0.0607	61	0.0664	66	70-130	9	35	mg/kg	03.12.18 07:34	X
Ethylbenzene	<0.00199	0.0996	0.0666	67	0.0704	70	70-130	6	35	mg/kg	03.12.18 07:34	X
m,p-Xylenes	<0.00398	0.199	0.131	66	0.138	69	70-130	5	35	mg/kg	03.12.18 07:34	X
o-Xylene	<0.00199	0.0996	0.0651	65	0.0709	71	70-130	9	35	mg/kg	03.12.18 07:34	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		87		70-130	%	03.12.18 07:34
4-Bromofluorobenzene	120		129		70-130	%	03.12.18 07:34

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$

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

Xenco Laboratories

The Environmental Lab of Texas

Page 50 of 119

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST
12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

Project Manager: Matt Green

Company Name: 2M Environmental Services, LLC.

Company Address: 1219 W. University Blvd.

City/State/Zip: Odessa, TX 79764

Telephone No: 432.614.6793

Sampler Signature: Matt Green

e-mail: mgreen@2m-environmental.com

Project Name: COG Redtail State COM # 001H

Project #:

Project Loc: Lea County, NM

PO #:

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

(lab use only)

ORDER #: 578121

LAB # (lab use only)		FIELD CODE		Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015B	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO ₄ , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg S	Volatiles	Semivolatiles	BTEX 8021B 5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides E 300.1	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT	
		North @ 1'				3/1/2018	905		1	X								Soil	X									X				X	
		East @ 1'				3/1/2018	910		1	X								Soil	X									X				X	
		West @ 1'				3/1/2018	915		1	X								Soil	X									X				X	
		T-2 @ 1'				3/1/2018	1010		1	X								Soil	X									X				X	
		T-2 @ 2'				3/1/2018	1015		1	X								Soil	X									X				X	
		T-3 @ 1'				3/1/2018	1040		1	X								Soil	X									X				X	
		T-3 @ 2'				3/1/2018	1045		1	X								Soil	X									X				X	
		T-1 @ 1'				3/1/2018	1120		1	X								Soil	X									X				X	
		T-1 @ 2'				3/1/2018	1125		1	X								Soil	X									X				X	
		South @ 1'				3/1/2018	1145		1	X								Soil	X									X				X	
																				</													

Special Instructions:

Relinquished by: Matt Green

Date

Time

Received by:

Date

Time

Relinquished by: Matt Green

Date

Time

Received by:

Date

Time

Relinquished by: Matt Green

Date

Time

Received by:

Date

Time

Temp: 1.2 IR ID: R-8

CF: (0-6: -0.2°C)

Corrected Temp: 1.0

Temperature Upon Receipt: °C



Client: 2M Enviromental Services LLC

Date/ Time Received: 03/02/2018 04:41:00 PM

Work Order #: 578121

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)?	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:

Katie Lowe

Date: 03/05/2018

Checklist reviewed by:

Jessica Kramer

Date: 03/05/2018

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
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised April 3, 2017
Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating, LLC (OGRID# 229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No.: 432-683-7443
Facility Name: REDTAIL STATE COM #001H	Facility Type: Battery
Surface Owner: State	Mineral Owner: State
API No.: 30-025-40181	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	2	23S	32E	330	North	660	East	Lea

Latitude: 32.340015 Longitude: -103.6390533 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 10 bbls PW	Volume Recovered: 8 bbls PW
Source of Release: Fittings/Connections	Date and Hour of Occurrence: 1/30/2018	Date and Hour of Discovery: 1/30/2018 11:00 AM
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED

By Olivia Yu at 3:36 pm, Feb 02, 2018

Describe Cause of Problem and Remedial Action Taken.*

This release was caused by a hole in the water leg. The water leg will be replaced.

Describe Area Affected and Cleanup Action Taken.*

The release remained within the unlined bermed containment. A vacuum truck was dispatched to recover all freestanding fluids. Concho will have the spill area evaluated for 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.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: 	OIL CONSERVATION DIVISION	
	Approved by Environmental Specialist: 	
Printed Name: Dakota Neel		
Title: HSE Coordinator	Approval Date: 2/2/2018	Expiration Date:
E-mail Address dneel2@concho.com	Conditions of Approval: see attached directive	Attached ☒
Date: 1/31/2018	Phone: 575-746-2010	

* Attach Additional Sheets If Necessary

1RP-4950

nOY1803356383

pOY1803356624

APPENDIX VI



Certificate of Analysis Summary 601598

COG Operating LLC, Artesia, NM

Project Name: Red Tail St. Com #1H

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea Co.NM

Date Received in Lab: Sat Oct-06-18 09:00 am

Report Date: 09-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601598-001	601598-002	601598-003	601598-004	601598-005	601598-006
	<i>Field Id:</i>	Bttm-1 3'	Bttm-2 3'	Bttm-3 3'	Bttm-4 3'	Bttm-5 3'	T-2/ T-3
	<i>Depth:</i>	3-	3-	3-	3-	3-	3-
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-05-18 11:00	Oct-05-18 11:05	Oct-05-18 12:00	Oct-05-18 12:05	Oct-05-18 12:10	Oct-05-18 12:15
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-08-18 09:30	Oct-08-18 09:30	Oct-08-18 09:30	Oct-08-18 09:30	Oct-08-18 09:30	Oct-08-18 09:30
	<i>Analyzed:</i>	Oct-08-18 12:21	Oct-08-18 12:43	Oct-08-18 13:05	Oct-08-18 13:26	Oct-08-18 13:47	Oct-08-18 14:09
	<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	<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00398 0.00398	<0.00401 0.00401	<0.00403 0.00403	<0.00398 0.00398	<0.00399 0.00399	<0.00402 0.00402
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00
	<i>Analyzed:</i>	Oct-08-18 14:10	Oct-08-18 14:27	Oct-08-18 14:32	Oct-08-18 14:38	Oct-08-18 14:44	Oct-08-18 15:01
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		341 4.95	18.2 5.00	305 4.97	292 4.97	576 4.99	712 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00
	<i>Analyzed:</i>	Oct-08-18 20:39	Oct-08-18 21:34	Oct-08-18 21:53	Oct-08-18 22:11	Oct-08-18 22:29	Oct-08-18 22:48
	<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		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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 - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 601598

COG Operating LLC, Artesia, NM

Project Name: Red Tail St. Com #1H



Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea Co.NM

Date Received in Lab: Sat Oct-06-18 09:00 am

Report Date: 09-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601598-007	601598-008	601598-009	601598-010	601598-011	601598-012
	<i>Field Id:</i>	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-05-18 11:10	Oct-05-18 11:20	Oct-05-18 11:25	Oct-05-18 11:30	Oct-05-18 11:35	Oct-05-18 11:40
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-08-18 09:30	Oct-08-18 09:30	Oct-08-18 09:30	Oct-08-18 09:30	Oct-09-18 08:00	Oct-09-18 08:00
	<i>Analyzed:</i>	Oct-08-18 14:30	Oct-08-18 14:52	Oct-08-18 15:13	Oct-08-18 15:35	Oct-09-18 10:37	Oct-09-18 10:59
	<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	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200
Toluene		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200
Ethylbenzene		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200
m,p-Xylenes		<0.00404 0.00404	<0.00398 0.00398	<0.00402 0.00402	<0.00402 0.00402	<0.00402 0.00402	<0.00399 0.00399
o-Xylene		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200
Total Xylenes		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200
Total BTEX		<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00
	<i>Analyzed:</i>	Oct-08-18 15:06	Oct-08-18 15:12	Oct-08-18 15:18	Oct-08-18 15:23	Oct-08-18 15:29	Oct-08-18 15:46
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		77.3 5.00	417 5.00	79.1 4.96	271 4.98	288 4.95	16.2 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00
	<i>Analyzed:</i>	Oct-08-18 23:07	Oct-08-18 23:26	Oct-08-18 23:44	Oct-09-18 00:03	Oct-09-18 01:00	Oct-09-18 01:18
	<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		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0

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

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 601598

COG Operating LLC, Artesia, NM

Project Name: Red Tail St. Com #1H



Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea Co.NM

Date Received in Lab: Sat Oct-06-18 09:00 am

Report Date: 09-OCT-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	601598-013	601598-014	601598-015	601598-016	601598-017	601598-018
	<i>Field Id:</i>	SW-7	SW-8	SW-9	SW-10	SW-11	SW-12
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-05-18 12:20	Oct-05-18 12:25	Oct-05-18 12:35	Oct-05-18 12:40	Oct-05-18 12:45	Oct-05-18 12:50
BTEX by EPA 8021B	<i>Extracted:</i>	Oct-09-18 08:00	Oct-09-18 08:00	Oct-09-18 08:00	Oct-09-18 08:00	Oct-09-18 08:00	Oct-09-18 08:00
	<i>Analyzed:</i>	Oct-09-18 11:20	Oct-09-18 11:42	Oct-09-18 12:03	Oct-09-18 12:25	Oct-09-18 12:46	Oct-09-18 13:07
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398	<0.00403 0.00403	<0.00402 0.00402	<0.00398 0.00398	<0.00399 0.00399	<0.00401 0.00401
o-Xylene		<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00	Oct-08-18 12:00
	<i>Analyzed:</i>	Oct-08-18 15:52	Oct-08-18 16:09	Oct-08-18 16:14	Oct-08-18 16:20	Oct-08-18 17:01	Oct-08-18 17:06
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		6.85 4.96	10.9 4.97	29.3 4.95	<5.05 5.05	27.3 5.05	23.4 4.96
TPH By SW8015 Mod	<i>Extracted:</i>	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00	Oct-08-18 15:00
	<i>Analyzed:</i>	Oct-09-18 01:37	Oct-09-18 01:56	Oct-09-18 02:15	Oct-09-18 02:34	Oct-09-18 02:53	Oct-09-18 03:12
	<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		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 601598

COG Operating LLC, Artesia, NM

Project Name: Red Tail St. Com #1H



Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea Co.NM

Date Received in Lab: Sat Oct-06-18 09:00 am

Report Date: 09-OCT-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	601598-019	601598-020				
	Field Id:	SW-13	SW-14				
	Depth:						
	Matrix:	SOIL	SOIL				
	Sampled:	Oct-05-18 12:55	Oct-05-18 12:58				
BTEX by EPA 8021B	Extracted:	Oct-09-18 08:00	Oct-09-18 08:00				
	Analyzed:	Oct-09-18 14:54	Oct-09-18 15:16				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00201 0.00201	<0.00199 0.00199				
Toluene		<0.00201 0.00201	<0.00199 0.00199				
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199				
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398				
o-Xylene		<0.00201 0.00201	<0.00199 0.00199				
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199				
Total BTEX		<0.00201 0.00201	<0.00199 0.00199				
Chloride by EPA 300	Extracted:	Oct-08-18 12:00	Oct-08-18 12:00				
	Analyzed:	Oct-08-18 17:12	Oct-08-18 17:18				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		11.3 5.00	465 5.00				
TPH By SW8015 Mod	Extracted:	Oct-08-18 15:00	Oct-08-18 15:00				
	Analyzed:	Oct-09-18 03:30	Oct-09-18 03:49				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons		15.4 15.0	15.9 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		15.4 15.0	15.9 15.0				

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Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 601598

for COG Operating LLC

Project Manager: Sheldon Hitchcock

Red Tail St. Com #1H

09-OCT-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 (T104704400-18-18)
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)



09-OCT-18

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **601598**

Red Tail St. Com #1H

Project Address: Lea Co.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) 601598. 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. 601598 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 Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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Sample Cross Reference 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Bttm-1 3'	S	10-05-18 11:00	3	601598-001
Bttm-2 3'	S	10-05-18 11:05	3	601598-002
Bttm-3 3'	S	10-05-18 12:00	3	601598-003
Bttm-4 3'	S	10-05-18 12:05	3	601598-004
Bttm-5 3'	S	10-05-18 12:10	3	601598-005
T-2/ T-3	S	10-05-18 12:15	3	601598-006
SW-1	S	10-05-18 11:10		601598-007
SW-2	S	10-05-18 11:20		601598-008
SW-3	S	10-05-18 11:25		601598-009
SW-4	S	10-05-18 11:30		601598-010
SW-5	S	10-05-18 11:35		601598-011
SW-6	S	10-05-18 11:40		601598-012
SW-7	S	10-05-18 12:20		601598-013
SW-8	S	10-05-18 12:25		601598-014
SW-9	S	10-05-18 12:35		601598-015
SW-10	S	10-05-18 12:40		601598-016
SW-11	S	10-05-18 12:45		601598-017
SW-12	S	10-05-18 12:50		601598-018
SW-13	S	10-05-18 12:55		601598-019
SW-14	S	10-05-18 12:58		601598-020



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Red Tail St. Com #1H

Project ID:

Work Order Number(s): 601598

Report Date: 09-OCT-18

Date Received: 10/06/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3065776 BTEX by EPA 8021B

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

Batch: LBA-3065825 BTEX by EPA 8021B

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



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-1 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-001

Date Collected: 10.05.18 11.00

Sample Depth: 3

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	341	4.95	mg/kg	10.08.18 14.10		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 20.39	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 20.39	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 20.39	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 20.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.08.18 20.39	
o-Terphenyl	84-15-1	94	%	70-135	10.08.18 20.39	



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-1 3'**
Lab Sample Id: 601598-001

Matrix: Soil
Date Collected: 10.05.18 11.00

Date Received: 10.06.18 09.00
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3065776

Date Prep: 10.08.18 09.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.08.18 12.21	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.08.18 12.21	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.08.18 12.21	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.08.18 12.21	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.08.18 12.21	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.08.18 12.21	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.08.18 12.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	10.08.18 12.21		
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.08.18 12.21		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-2 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-002

Date Collected: 10.05.18 11.05

Sample Depth: 3

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.2	5.00	mg/kg	10.08.18 14.27		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 21.34	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 21.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 21.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 21.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.08.18 21.34	
o-Terphenyl	84-15-1	96	%	70-135	10.08.18 21.34	



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-2 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-002

Date Collected: 10.05.18 11.05

Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.08.18 12.43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.08.18 12.43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.08.18 12.43	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.08.18 12.43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.08.18 12.43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.08.18 12.43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.08.18 12.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.08.18 12.43		
1,4-Difluorobenzene	540-36-3	119	%	70-130	10.08.18 12.43		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-3 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-003

Date Collected: 10.05.18 12.00

Sample Depth: 3

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	305	4.97	mg/kg	10.08.18 14.32		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 21.53	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 21.53	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 21.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 21.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.08.18 21.53	
o-Terphenyl	84-15-1	100	%	70-135	10.08.18 21.53	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-3 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-003

Date Collected: 10.05.18 12.00

Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.08.18 13.05	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.08.18 13.05	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.08.18 13.05	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.08.18 13.05	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.08.18 13.05	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.08.18 13.05	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.08.18 13.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	10.08.18 13.05		
1,4-Difluorobenzene	540-36-3	118	%	70-130	10.08.18 13.05		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-4 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-004

Date Collected: 10.05.18 12.05

Sample Depth: 3

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	292	4.97	mg/kg	10.08.18 14.38		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 22.11	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 22.11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 22.11	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 22.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.08.18 22.11	
o-Terphenyl	84-15-1	97	%	70-135	10.08.18 22.11	



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-4 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-004

Date Collected: 10.05.18 12.05

Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.08.18 13.26	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.08.18 13.26	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.08.18 13.26	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.08.18 13.26	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.08.18 13.26	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.08.18 13.26	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.08.18 13.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	10.08.18 13.26		
4-Bromofluorobenzene	460-00-4	108	%	70-130	10.08.18 13.26		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-5 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-005

Date Collected: 10.05.18 12.10

Sample Depth: 3

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	576	4.99	mg/kg	10.08.18 14.44		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 22.29	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 22.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 22.29	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 22.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.08.18 22.29	
o-Terphenyl	84-15-1	99	%	70-135	10.08.18 22.29	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **Bttm-5 3'**

Matrix: Soil

Date Received: 10.06.18 09.00

Lab Sample Id: 601598-005

Date Collected: 10.05.18 12.10

Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.08.18 13.47	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.08.18 13.47	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.08.18 13.47	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.08.18 13.47	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.08.18 13.47	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.08.18 13.47	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.08.18 13.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.08.18 13.47		
1,4-Difluorobenzene	540-36-3	115	%	70-130	10.08.18 13.47		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: T-2/ T-3
Lab Sample Id: 601598-006

Matrix: Soil
Date Collected: 10.05.18 12.15

Date Received: 10.06.18 09.00
Sample Depth: 3

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Date Prep: 10.08.18 12.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	712	5.00	mg/kg	10.08.18 15.01		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Date Prep: 10.08.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 22.48	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 22.48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 22.48	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 22.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.08.18 22.48	
o-Terphenyl	84-15-1	95	%	70-135	10.08.18 22.48	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: T-2/ T-3
Lab Sample Id: 601598-006

Matrix: Soil
Date Collected: 10.05.18 12.15

Date Received: 10.06.18 09.00
Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3065776

Date Prep: 10.08.18 09.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.08.18 14.09	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.08.18 14.09	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.08.18 14.09	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.08.18 14.09	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.08.18 14.09	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.08.18 14.09	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.08.18 14.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	10.08.18 14.09		
1,4-Difluorobenzene	540-36-3	108	%	70-130	10.08.18 14.09		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-1**
 Lab Sample Id: 601598-007

Matrix: Soil
 Date Collected: 10.05.18 11.10

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	77.3	5.00	mg/kg	10.08.18 15.06		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 23.07	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 23.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 23.07	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 23.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.08.18 23.07	
o-Terphenyl	84-15-1	91	%	70-135	10.08.18 23.07	



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-1**
Lab Sample Id: 601598-007

Matrix: Soil
Date Collected: 10.05.18 11.10

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.08.18 14.30	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.08.18 14.30	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.08.18 14.30	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	10.08.18 14.30	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.08.18 14.30	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.08.18 14.30	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.08.18 14.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	10.08.18 14.30		
4-Bromofluorobenzene	460-00-4	107	%	70-130	10.08.18 14.30		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: SW-2
Lab Sample Id: 601598-008

Matrix: Soil
Date Collected: 10.05.18 11.20

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	417	5.00	mg/kg	10.08.18 15.12		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.08.18 23.26	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.08.18 23.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.08.18 23.26	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.08.18 23.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	10.08.18 23.26	
o-Terphenyl	84-15-1	99	%	70-135	10.08.18 23.26	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-2**
 Lab Sample Id: 601598-008

Matrix: Soil
 Date Collected: 10.05.18 11.20

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.08.18 14.52	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.08.18 14.52	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.08.18 14.52	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.08.18 14.52	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.08.18 14.52	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.08.18 14.52	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.08.18 14.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	114	%	70-130	10.08.18 14.52		
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.08.18 14.52		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-3**
 Lab Sample Id: 601598-009

Matrix: Soil
 Date Collected: 10.05.18 11.25

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	79.1	4.96	mg/kg	10.08.18 15.18		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Date Prep: 10.08.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	10.08.18 23.44	U	1
Diesel Range Organics	C10C28DRO	<14.9	14.9	mg/kg	10.08.18 23.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.08.18 23.44	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.08.18 23.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.08.18 23.44	
o-Terphenyl	84-15-1	94	%	70-135	10.08.18 23.44	



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-3**
Lab Sample Id: 601598-009

Matrix: Soil
Date Collected: 10.05.18 11.25

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.08.18 15.13	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.08.18 15.13	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.08.18 15.13	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.08.18 15.13	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.08.18 15.13	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.08.18 15.13	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.08.18 15.13	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.08.18 15.13		
4-Bromofluorobenzene	460-00-4	109	%	70-130	10.08.18 15.13		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-4**
 Lab Sample Id: 601598-010

Matrix: Soil
 Date Collected: 10.05.18 11.30

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 12.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	271	4.98	mg/kg	10.08.18 15.23		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 00.03	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 00.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 00.03	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 00.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.09.18 00.03	
o-Terphenyl	84-15-1	93	%	70-135	10.09.18 00.03	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-4**
 Lab Sample Id: 601598-010

Matrix: Soil
 Date Collected: 10.05.18 11.30

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.08.18 09.30

Basis: Wet Weight

Seq Number: 3065776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.08.18 15.35	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.08.18 15.35	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.08.18 15.35	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.08.18 15.35	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.08.18 15.35	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.08.18 15.35	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.08.18 15.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	10.08.18 15.35		
4-Bromofluorobenzene	460-00-4	111	%	70-130	10.08.18 15.35		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: SW-5
Lab Sample Id: 601598-011

Matrix: Soil
Date Collected: 10.05.18 11.35

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	288	4.95	mg/kg	10.08.18 15.29		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 01.00	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 01.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 01.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 01.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.09.18 01.00	
o-Terphenyl	84-15-1	95	%	70-135	10.09.18 01.00	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: SW-5
Lab Sample Id: 601598-011

Matrix: Soil
Date Collected: 10.05.18 11.35

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.09.18 10.37	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.09.18 10.37	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.09.18 10.37	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.09.18 10.37	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.09.18 10.37	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.09.18 10.37	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.09.18 10.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	10.09.18 10.37		
1,4-Difluorobenzene	540-36-3	110	%	70-130	10.09.18 10.37		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-6**
 Lab Sample Id: 601598-012

Matrix: Soil
 Date Collected: 10.05.18 11.40

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.2	5.00	mg/kg	10.08.18 15.46		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Date Prep: 10.08.18 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 01.18	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 01.18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 01.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 01.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.09.18 01.18	
o-Terphenyl	84-15-1	95	%	70-135	10.09.18 01.18	



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-6**
 Lab Sample Id: 601598-012

Matrix: Soil
 Date Collected: 10.05.18 11.40

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.09.18 10.59	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.09.18 10.59	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.09.18 10.59	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.09.18 10.59	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.09.18 10.59	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.09.18 10.59	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.09.18 10.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	10.09.18 10.59		
1,4-Difluorobenzene	540-36-3	106	%	70-130	10.09.18 10.59		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-7**
 Lab Sample Id: 601598-013

Matrix: Soil
 Date Collected: 10.05.18 12.20

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.85	4.96	mg/kg	10.08.18 15.52		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 01.37	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 01.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 01.37	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 01.37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	10.09.18 01.37	
o-Terphenyl	84-15-1	100	%	70-135	10.09.18 01.37	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-7**
 Lab Sample Id: 601598-013

Matrix: Soil
 Date Collected: 10.05.18 12.20

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.09.18 11.20	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.09.18 11.20	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.09.18 11.20	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.09.18 11.20	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.09.18 11.20	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.09.18 11.20	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.09.18 11.20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	10.09.18 11.20		
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.09.18 11.20		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-8**
 Lab Sample Id: 601598-014

Matrix: Soil
 Date Collected: 10.05.18 12.25

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.9	4.97	mg/kg	10.08.18 16.09		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	10.09.18 01.56	U	1
Diesel Range Organics	C10C28DRO	<14.9	14.9	mg/kg	10.09.18 01.56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	10.09.18 01.56	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	10.09.18 01.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	10.09.18 01.56	
o-Terphenyl	84-15-1	91	%	70-135	10.09.18 01.56	



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-8**
Lab Sample Id: 601598-014

Matrix: Soil
Date Collected: 10.05.18 12.25

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.09.18 11.42	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.09.18 11.42	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.09.18 11.42	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.09.18 11.42	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.09.18 11.42	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.09.18 11.42	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.09.18 11.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	10.09.18 11.42		
1,4-Difluorobenzene	540-36-3	111	%	70-130	10.09.18 11.42		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-9**
 Lab Sample Id: 601598-015

Matrix: Soil
 Date Collected: 10.05.18 12.35

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 12.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.3	4.95	mg/kg	10.08.18 16.14		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 02.15	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 02.15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 02.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 02.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	95	%	70-135	10.09.18 02.15		
o-Terphenyl	84-15-1	101	%	70-135	10.09.18 02.15		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-9**
 Lab Sample Id: 601598-015

Matrix: Soil
 Date Collected: 10.05.18 12.35

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.09.18 12.03	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.09.18 12.03	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.09.18 12.03	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.09.18 12.03	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.09.18 12.03	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.09.18 12.03	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.09.18 12.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	10.09.18 12.03		
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.09.18 12.03		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-10**
 Lab Sample Id: 601598-016

Matrix: Soil
 Date Collected: 10.05.18 12.40

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 12.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.05	5.05	mg/kg	10.08.18 16.20	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 02.34	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 02.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 02.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 02.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.09.18 02.34	
o-Terphenyl	84-15-1	99	%	70-135	10.09.18 02.34	



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-10**
 Lab Sample Id: 601598-016

Matrix: Soil
 Date Collected: 10.05.18 12.40

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.09.18 12.25	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.09.18 12.25	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.09.18 12.25	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.09.18 12.25	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.09.18 12.25	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.09.18 12.25	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.09.18 12.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	10.09.18 12.25		
1,4-Difluorobenzene	540-36-3	115	%	70-130	10.09.18 12.25		



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COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-11**
 Lab Sample Id: 601598-017

Matrix: Soil
 Date Collected: 10.05.18 12.45

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 12.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	27.3	5.05	mg/kg	10.08.18 17.01		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 10.08.18 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 02.53	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 02.53	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 02.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 02.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.09.18 02.53	
o-Terphenyl	84-15-1	94	%	70-135	10.09.18 02.53	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-11**
 Lab Sample Id: 601598-017

Matrix: Soil
 Date Collected: 10.05.18 12.45

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.09.18 12.46	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.09.18 12.46	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.09.18 12.46	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.09.18 12.46	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.09.18 12.46	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.09.18 12.46	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.09.18 12.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	10.09.18 12.46		
1,4-Difluorobenzene	540-36-3	122	%	70-130	10.09.18 12.46		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-12**
 Lab Sample Id: 601598-018

Matrix: Soil
 Date Collected: 10.05.18 12.50

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.4	4.96	mg/kg	10.08.18 17.06		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	10.09.18 03.12	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 03.12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 03.12	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	10.09.18 03.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	10.09.18 03.12	
o-Terphenyl	84-15-1	107	%	70-135	10.09.18 03.12	



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-12**
 Lab Sample Id: 601598-018

Matrix: Soil
 Date Collected: 10.05.18 12.50

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.09.18 13.07	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.09.18 13.07	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.09.18 13.07	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.09.18 13.07	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.09.18 13.07	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.09.18 13.07	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.09.18 13.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	10.09.18 13.07		
1,4-Difluorobenzene	540-36-3	115	%	70-130	10.09.18 13.07		



Certificate of Analytical Results 601598

COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-13**
 Lab Sample Id: 601598-019

Matrix: Soil
 Date Collected: 10.05.18 12.55

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: CHE

Seq Number: 3065709

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.3	5.00	mg/kg	10.08.18 17.12		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3065807

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	15.4	15.0	mg/kg	10.09.18 03.30		1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 03.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 03.30	U	1
Total TPH	PHC635	15.4	15.0	mg/kg	10.09.18 03.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	10.09.18 03.30	
o-Terphenyl	84-15-1	101	%	70-135	10.09.18 03.30	



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-13**
Lab Sample Id: 601598-019

Matrix: Soil
Date Collected: 10.05.18 12.55

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.09.18 14.54	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.09.18 14.54	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.09.18 14.54	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.09.18 14.54	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.09.18 14.54	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.09.18 14.54	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.09.18 14.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	120	%	70-130	10.09.18 14.54		
4-Bromofluorobenzene	460-00-4	111	%	70-130	10.09.18 14.54		



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-14**
Lab Sample Id: 601598-020

Matrix: Soil
Date Collected: 10.05.18 12.58

Date Received: 10.06.18 09.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: CHE

Date Prep: 10.08.18 12.00

Basis: Wet Weight

Seq Number: 3065709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	465	5.00	mg/kg	10.08.18 17.18		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 10.08.18 15.00

Basis: Wet Weight

Seq Number: 3065807

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	15.9	15.0	mg/kg	10.09.18 03.49		1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	10.09.18 03.49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	10.09.18 03.49	U	1
Total TPH	PHC635	15.9	15.0	mg/kg	10.09.18 03.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.09.18 03.49	
o-Terphenyl	84-15-1	93	%	70-135	10.09.18 03.49	



Certificate of Analytical Results 601598



COG Operating LLC, Artesia, NM

Red Tail St. Com #1H

Sample Id: **SW-14**
Lab Sample Id: 601598-020

Matrix: Soil
Date Collected: 10.05.18 12.58

Date Received: 10.06.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 10.09.18 08.00

Basis: Wet Weight

Seq Number: 3065825

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.09.18 15.16	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.09.18 15.16	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.09.18 15.16	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.09.18 15.16	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.09.18 15.16	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.09.18 15.16	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.09.18 15.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	10.09.18 15.16		
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.09.18 15.16		



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.

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

Red Tail St. Com #1H

Analytical Method: Chloride by EPA 300

Seq Number: 3065709

MB Sample Id: 7663716-1-BLK

Matrix: Solid

LCS Sample Id: 7663716-1-BKS

Prep Method: E300P

Date Prep: 10.08.18

LCSD Sample Id: 7663716-1-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	244	98	245	98	90-110	0	20	mg/kg	10.08.18 13:58	

Analytical Method: Chloride by EPA 300

Seq Number: 3065709

Parent Sample Id: 601598-001

Matrix: Soil

MS Sample Id: 601598-001 S

Prep Method: E300P

Date Prep: 10.08.18

MSD Sample Id: 601598-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	341	248	572	93	572	93	90-110	0	20	mg/kg	10.08.18 14:15	

Analytical Method: Chloride by EPA 300

Seq Number: 3065709

Parent Sample Id: 601598-011

Matrix: Soil

MS Sample Id: 601598-011 S

Prep Method: E300P

Date Prep: 10.08.18

MSD Sample Id: 601598-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	288	248	525	96	525	96	90-110	0	20	mg/kg	10.08.18 15:35	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3065807

MB Sample Id: 7663748-1-BLK

Matrix: Solid

LCS Sample Id: 7663748-1-BKS

Prep Method: TX1005P

Date Prep: 10.08.18

LCSD Sample Id: 7663748-1-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	958	96	981	98	70-135	2	20	mg/kg	10.08.18 20:02	
Diesel Range Organics	<8.13	1000	970	97	1000	100	70-135	3	20	mg/kg	10.08.18 20:02	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		129		118		70-135	%	10.08.18 20:02
o-Terphenyl	98		106		105		70-135	%	10.08.18 20:02

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

Red Tail St. Com #1H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3065807

Parent Sample Id: 601598-001

Matrix: Soil

MS Sample Id: 601598-001 S

Prep Method: TX1005P

Date Prep: 10.08.18

MSD Sample Id: 601598-001 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	9.23	1000	943	93	922	91	70-135	2	20	mg/kg	10.08.18 20:57	
Diesel Range Organics	<8.13	1000	987	99	955	96	70-135	3	20	mg/kg	10.08.18 20:57	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		127		70-135	%	10.08.18 20:57
o-Terphenyl	103		99		70-135	%	10.08.18 20:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3065776

MB Sample Id: 7663798-1-BLK

Matrix: Solid

LCS Sample Id: 7663798-1-BKS

Prep Method: SW5030B

Date Prep: 10.08.18

LCSD Sample Id: 7663798-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.105	105	0.102	101	70-130	3	35	mg/kg	10.08.18 10:12	
Toluene	<0.00200	0.100	0.0924	92	0.0894	89	70-130	3	35	mg/kg	10.08.18 10:12	
Ethylbenzene	<0.00200	0.100	0.106	106	0.103	102	70-130	3	35	mg/kg	10.08.18 10:12	
m,p-Xylenes	<0.00401	0.200	0.218	109	0.211	105	70-130	3	35	mg/kg	10.08.18 10:12	
o-Xylene	<0.00200	0.100	0.108	108	0.106	105	70-130	2	35	mg/kg	10.08.18 10:12	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	120		104		112		70-130	%	10.08.18 10:12
4-Bromofluorobenzene	98		100		103		70-130	%	10.08.18 10:12

Analytical Method: BTEX by EPA 8021B

Seq Number: 3065825

MB Sample Id: 7663819-1-BLK

Matrix: Solid

LCS Sample Id: 7663819-1-BKS

Prep Method: SW5030B

Date Prep: 10.09.18

LCSD Sample Id: 7663819-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.111	111	0.103	103	70-130	7	35	mg/kg	10.09.18 08:09	
Toluene	<0.00201	0.100	0.0974	97	0.0908	91	70-130	7	35	mg/kg	10.09.18 08:09	
Ethylbenzene	<0.00201	0.100	0.115	115	0.106	106	70-130	8	35	mg/kg	10.09.18 08:09	
m,p-Xylenes	<0.00402	0.201	0.230	114	0.210	105	70-130	9	35	mg/kg	10.09.18 08:09	
o-Xylene	<0.00201	0.100	0.116	116	0.106	106	70-130	9	35	mg/kg	10.09.18 08:09	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	114		112		119		70-130	%	10.09.18 08:09
4-Bromofluorobenzene	90		98		100		70-130	%	10.09.18 08:09

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

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

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

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



COG Operating LLC

Red Tail St. Com #1H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3065776

Parent Sample Id: 601598-001

Matrix: Soil

MS Sample Id: 601598-001 S

Prep Method: SW5030B

Date Prep: 10.08.18

MSD Sample Id: 601598-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.112	112	0.0918	92	70-130	20	35	mg/kg	10.08.18 10:55	
Toluene	<0.00199	0.0996	0.0991	99	0.0815	82	70-130	19	35	mg/kg	10.08.18 10:55	
Ethylbenzene	<0.00199	0.0996	0.113	113	0.0911	91	70-130	21	35	mg/kg	10.08.18 10:55	
m,p-Xylenes	<0.00398	0.199	0.234	118	0.185	93	70-130	23	35	mg/kg	10.08.18 10:55	
o-Xylene	<0.00199	0.0996	0.115	115	0.0919	92	70-130	22	35	mg/kg	10.08.18 10:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	127		119		70-130	%	10.08.18 10:55
4-Bromofluorobenzene	112		110		70-130	%	10.08.18 10:55

Analytical Method: BTEX by EPA 8021B

Seq Number: 3065825

Parent Sample Id: 601306-001

Matrix: Soil

MS Sample Id: 601306-001 S

Prep Method: SW5030B

Date Prep: 10.09.18

MSD Sample Id: 601306-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0742	74	0.0874	88	70-130	16	35	mg/kg	10.09.18 08:51	
Toluene	<0.00199	0.0996	0.0682	68	0.0783	78	70-130	14	35	mg/kg	10.09.18 08:51	X
Ethylbenzene	<0.00199	0.0996	0.0775	78	0.0889	89	70-130	14	35	mg/kg	10.09.18 08:51	
m,p-Xylenes	<0.00398	0.199	0.141	71	0.165	83	70-130	16	35	mg/kg	10.09.18 08:51	
o-Xylene	<0.00199	0.0996	0.0766	77	0.0887	89	70-130	15	35	mg/kg	10.09.18 08:51	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	119		114		70-130	%	10.09.18 08:51
4-Bromofluorobenzene	111		114		70-130	%	10.09.18 08:51

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

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

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

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



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Service Center- Hobbs, NM (575) 392-7550

CHAIN OF CUSTODY

Page 1 of 2

Revision 2016.1

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes	
Company Name / Branch: COB Artesia				Project Name/Number: Red hair St. com #14									
Company Address: Lea Co. NM				Project Location: Lea Co. NM									
Email: Sheldon Hitchcock				Phone No: 505-333-4400				Invoice To: Lea Co. NM					
Project Contact: Sheldon Hitchcock				PO Number: 773411905357									
Sampler's Name: Sheldon Hitchcock													

No.	Field ID / Point of Collection	Collection		Matrix	# of bottles	Number of preserved bottles							Notes	Field Comments	
		Sample Depth	Date			Time	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4			MEOH
1	B+M-1 3'	3	10/5/18	11:00	5	1									
2	B+M-2 3'	3	11:05	5	1										
3	B+M-3 3'	3	12:00	5	1										
4	B+M-4 3'	3	12:05	5	1										
5	B+M-5 3'	3	12:10	5	1										
6	T-2/T-3	3	12:15	5	1										
7	SW-1	N/A	11:10	5	1										
8	SW-2	N/A	11:20	5	1										
9	SW-3	N/A	11:25	5	1										
10	SW-4	N/A	11:30	5	1										

Turnaround Time (Business days)				Data Deliverable Information				Notes:			
☒ Same Day TAT ☐ 5 Day TAT ☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ 2 Day EMERGENCY ☐ Contract TAT ☐ 3 Day EMERGENCY				☐ Level II Std OC ☐ Level IV (Full Data Pkg / raw data) ☐ Level III Std OC + Forms ☐ TRRP Level IV ☐ Level 3 (CLP Forms) ☐ UST / RG 411 ☐ Level II Report with TRRP checklist							

TAT Starts Day received by Lab, if received by 5:00 pm				FED-EX / UPS - Tracking # 773411905357			
Relinquished by: Sheldon Hitchcock		Date Time: 10/5/18 14:35		Received By: [Signature]		Date Time: 10/5/18 15:30	
Relinquished by: [Signature]		Date Time: 10/5/18 15:30		Received By: [Signature]		Date Time: 10/6/18 09:00	
Relinquished by: [Signature]		Date Time: 10/5/18 15:30		Received By: [Signature]		Date Time: 10/6/18 09:00	

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 Phoenix, AZ (480) 355-0900
 Service Center - Baton Rouge, LA (832) 712-8143

 Service Center - Amarillo, TX (806) 678-4514
 Service Center - Hobbs, NM (575) 392-7550

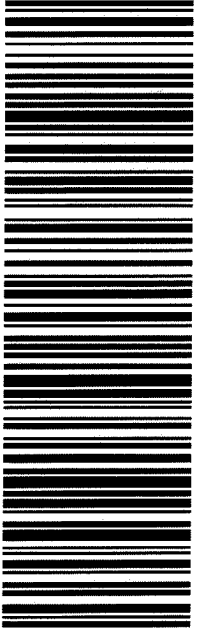
CHAIN OF CUSTODY

Page 2 of 2

Revision 2016.1

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes			
Company Name / Branch: COB Artsgia				Project Name/Number: Redtail St. com #11H											
Company Address:				Project Location: Lea Co. NM											
Email:				Invoice To:											
Phone No:															
Project Contact: Sheldon Hitecoco				PO Number:											
Sampler's Name: Sheldon Hitecoco															
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Field Comments
1	SV-5	N/A	10/5/18	11:35	S	1									TPH
2	SV-6			11:40	S	1									BTX
3	SV-7			12:20	S	1									Chlorides
4	SV-8			12:25	S	1									
5	SV-9			12:35	S	1									
6	SV-10			12:40	S	1									
7	SV-11			12:45	S	1									
8	SV-12			12:50	S	1									
9	SV-13			12:55	S	1									
10	SV-14			12:58	S	1									
Turnaround Time (Business days)															
☒ Same Day TAT ☐ 5 Day TAT ☐ Level II Std QC ☐ Level IV (Full Data Plg / raw data)															
☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ Level III Std QC+ Forms ☐ TRRP Level IV															
☐ 2 Day EMERGENCY ☐ Contract TAT ☐ Level 3 (CLP Forms) ☐ UST / RG 411															
☐ 3 Day EMERGENCY ☐ Level II Report with TRRP checklist															
TAT Starts Day received by Lab, if received by 5:00 pm															
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY															
Relinquished by Sampler:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:	
1. <i>Sheldon Hitecoco</i>		10/5/18 15:30		2. <i>Sheldon Hitecoco</i>		10/5/18 15:30		3. <i>Sheldon Hitecoco</i>		10/5/18 15:30		4. <i>Sheldon Hitecoco</i>		10/5/18 15:30	
3. Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:	
5. Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:	
5. Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:	
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 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.															

W = Water
 S = Soil/Sed/Solid
 GW = Ground Water
 DW = Drinking Water
 P = Product
 SW = Surface Water
 SL = Sludge
 OW = Ocean/Sea Water
 WI = Wipe
 O = Oil
 WW = Waste Water
 A = Air

41 MAFA  TX-US LBB		TRK# 7734 1290 5587 0201 SATURDAY HOLD PRIORITY OVERNIGHT HLD MAFKI LBB	(575) 887-6245 ORIGIN ID:CAOA XENCO SATURDAY PAC N MAIL 910 W PIERCE ST CARLSBAD, NM 88220 UNITED STATES US SHIP DATE: 05OCT18 ACTWGT: 58.00 LB CAD: 101813706INET4040 DIMS: 28x14x16 IN BILL RECIPIENT
TO HOLD FOR XENCO FEDEX OFFICE PRINT & SHIP CENTER FEDEX OFFICE PRINT & SHIP CENTER 200 W INTERSTATE 20 MIDLAND TX 79701 (806) 674-0639 INV/ REF: XENCO PO/ DEPT:		J18211881501Lur  552J1188FB/DCA5	

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



Client: COG Operating LLC

Date/ Time Received: 10/06/2018 09:00:00 AM

Work Order #: 601598

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)?	.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#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: 10/08/2018

Checklist reviewed by:

Jessica Kramer

Date: 10/08/2018



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

October 11, 2018

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: RED TAIL STATE COM #1 H

Enclosed are the results of analyses for samples received by the laboratory on 10/11/18 10:50.

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".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

COG OPERATING
 SHELDON HITCHCOCK
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

Received:	10/11/2018	Sampling Date:	10/11/2018
Reported:	10/11/2018	Sampling Type:	Soil
Project Name:	RED TAIL STATE COM #1 H	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	LEA CO NM		

Sample ID: T -2 / T- 3 3.5' (H802900-01)**Chloride, SM4500Cl-B****mg/kg****Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	10/11/2018	ND	448	112	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

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

*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



CARDINAL
Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Concho Resources		BILL TO		ANALYSIS REQUEST					
Project Manager: Sheldon Hitchcock		P.O. #:							
Address: 2407 Pecos Avenue		Company: COG							
City: Artesia		Attn: Robert McNeill							
State: NM Zip: 88210		Address:							
Phone #: 575-703-6475 Fax #:		City:							
Project #: _____		State:							
Project Name: Redtail State Cor #1H		Zip:							
Project Location: Lea Co, NM		Phone #:							
Sample Name: Sheldon Hitchcock		Fax #:							
FOR LAB USE ONLY		PRESERV		SAMPLING					
Lab I.D.	Sample I.D.	MATRIX		DATE	TIME				
		(G)RAB OR (C)OMP.	# CONTAINERS			GROUNDWATER	WASTEWATER		
H802900	T-2/T-3 3.5'	G	1	10/11/19	10:00				
						SOIL	OIL	SLUDGE	OTHER :
						ACID/BASE:	ICE / COOL	OTHER :	
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 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: 10-11-18		Received By: _____					
Relinquished By: _____		Time: 10:50		Date: _____					
Time: _____		Received By: _____		Phone Result: ☐ Yes ☐ No ☐ Add'l Phone #: _____					
Delivered By: (Circle One)		Sample Condition		CHECKED BY: (Initials)					
Sampler - UPS - Bus - Other:		Cool ☐ Intact ☒		Yes ☒ No ☐					
20.42		50.		Remarks: Plush					

APPENDIX VII



CONCHO

COG Operating LLC

REDTAIL STATE COM #1H
UNIT A, SEC. 2-23S-32E
NM STATE LEASE #38679
API #30-025-40181
512-327-8776



☉ 352°N (T) ☀ 0.000000°, 0.000000° ▲ 0ft

05 Oct 2018, 11:10



NE

E

SE

60

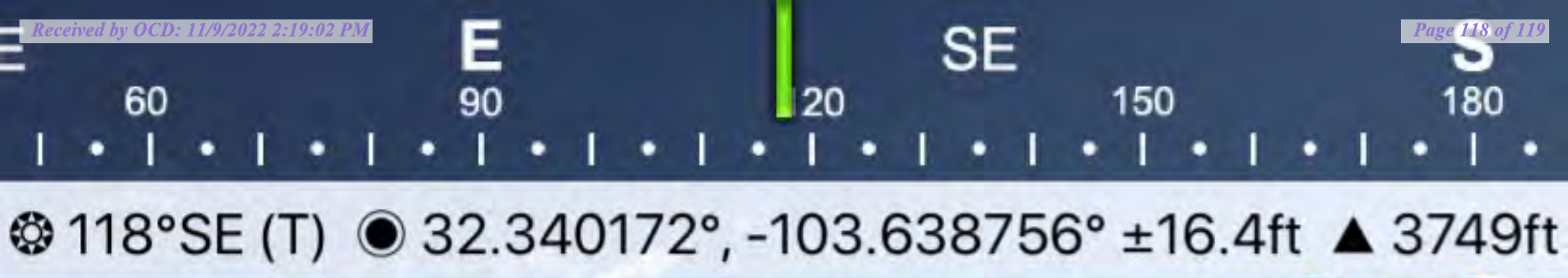
90

120

150

☼ 105°E (T) ● 32.340233°, -103.638763° ±16.4ft ▲ 3740ft

05 Oct 2018 11 10



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

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

CONDITIONS

Action 157459

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 157459
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	11/9/2022