

SITE INFORMATION

Report Type: Work Plan 2RP-4024

General Site Information:

Site:	Firefox 4 Fed Com 5H Battery				
Company:	COG Operating LLC				
Section, Township and Range	Unit M	Sec. 04	T 19S	R 31E	
Lease Number:	API No. 30-015-41423				
County:	Eddy County				
GPS:	32.683605° N			103.882709° W	
Surface Owner:	Federal				
Mineral Owner:					
Directions:	From the intersection of 126A (Maljamar Rd) and Lusk Plant Rd. in rural Eddy County, turn west on Lusk Rd for approximately 6.20 mi, turn west onto lease road for 0.4 miles, turn south for 0.6 mi , turn west onto lease road for 0.15 mi to location on north side of lease road.				

Release Data:

Date Released:	11/25/2016	
Type Release:	Produced Water	
Source of Contamination:	Water Line	
Fluid Released:	8 bbls	
Fluids Recovered:	7 bbls	

Official Communication:

Name:	Robert McNeil		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	175'-200'
WellHead Protection:		
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:		
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000



April 28, 2017

Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Work Plan for the COG Operating LLC., Firefox 4 Fed Com 5H Battery, Unit M, Section 04, Township 19 South, Range 31 East, Eddy County, New Mexico. 2RP-4024

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to prepare a work plan for the release assessed by COG at the Firefox 4 Fed Com 5H Battery, Unit M, Section 04, Township 19 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.683605°, W 103.882709°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on November 25, 2016, and released approximately eight (8) barrels of produced water due to leak in a water line. Approximately seven (7) barrels of produced water was recovered using a vacuum truck. The spill is located outside the bermed facility and migrated into the pasture and measures approximately 25' x 75' and 25' x 75'. The initial C-141 form is included in Appendix A.

Groundwater

No water wells were listed within Section 04 on the New Mexico Office of the State Engineer's (NMOSE) database. The nearest well listed in the NMOSE database is located in Section 19 with a reported depth of approximately 180' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is shown to be between 175' and 200' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On December 19, 2016, COG personnel was onsite to evaluate and sample the release area. Using a backhoe, two (2) sample trenches (T-1 and T-2) were installed to total depths of 8.0' and 10.0' below surface to evaluate the impact to the soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The trench location is shown in Figure 3.

Referring to Table 1, none of the samples collected at trenches (T-1 and T-2) showed total TPH, benzene, or total BTEX concentrations above the RRAL's. However, the area of trench (T-1) showed elevated chloride concentrations in the shallow soils with a chloride high of 8,000 mg/kg at 1.0' below surface, which then declined with depth and showed a bottom hole concentration of 208 mg/kg at 10.0' below surface. Additionally, the area of trench (T-2) showed a chloride high of 12,800 mg/kg at surface, which inconsistently declined with depth to 228 mg/kg at 6.0' below surface. A chloride spike of 3,480 mg/kg was detected at 7.0', before declining to 720 mg/kg at 8.0' below surface and the area was not vertically defined.

Based on the laboratory results, COG personnel returned to the site on March 16, 2017, to resample and assess the area of trench (T-2). One (1) backhoe trench (T-1) was installed in the area of trench (T-2) in order to vertically define the chloride impact. Selected samples were analyzed chloride by EPA method 300.0. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1.

Referring to Table 1, the area of T-1 (T-2) showed a chloride concentration of 7,970 mg/kg at surface. The chloride concentrations then steadily declined with depth to 307 mg/kg at 8.0' and showed a bottom hole concentration of <10.0 mg/kg at 14.0' below surface.



Work Plan

Based on the laboratory results, COG proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of trench (T-1) will be excavated to a depth of approximately 2.0' and the area of trench (T-2) will be excavated to a depth of approximately 5.0'-6.0' below surface in order to remove the elevated chloride concentrations in the shallow soils. Once excavated to the appropriate depth, the excavated areas will be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

A handwritten signature in blue ink that reads 'Clair Gonzales'.

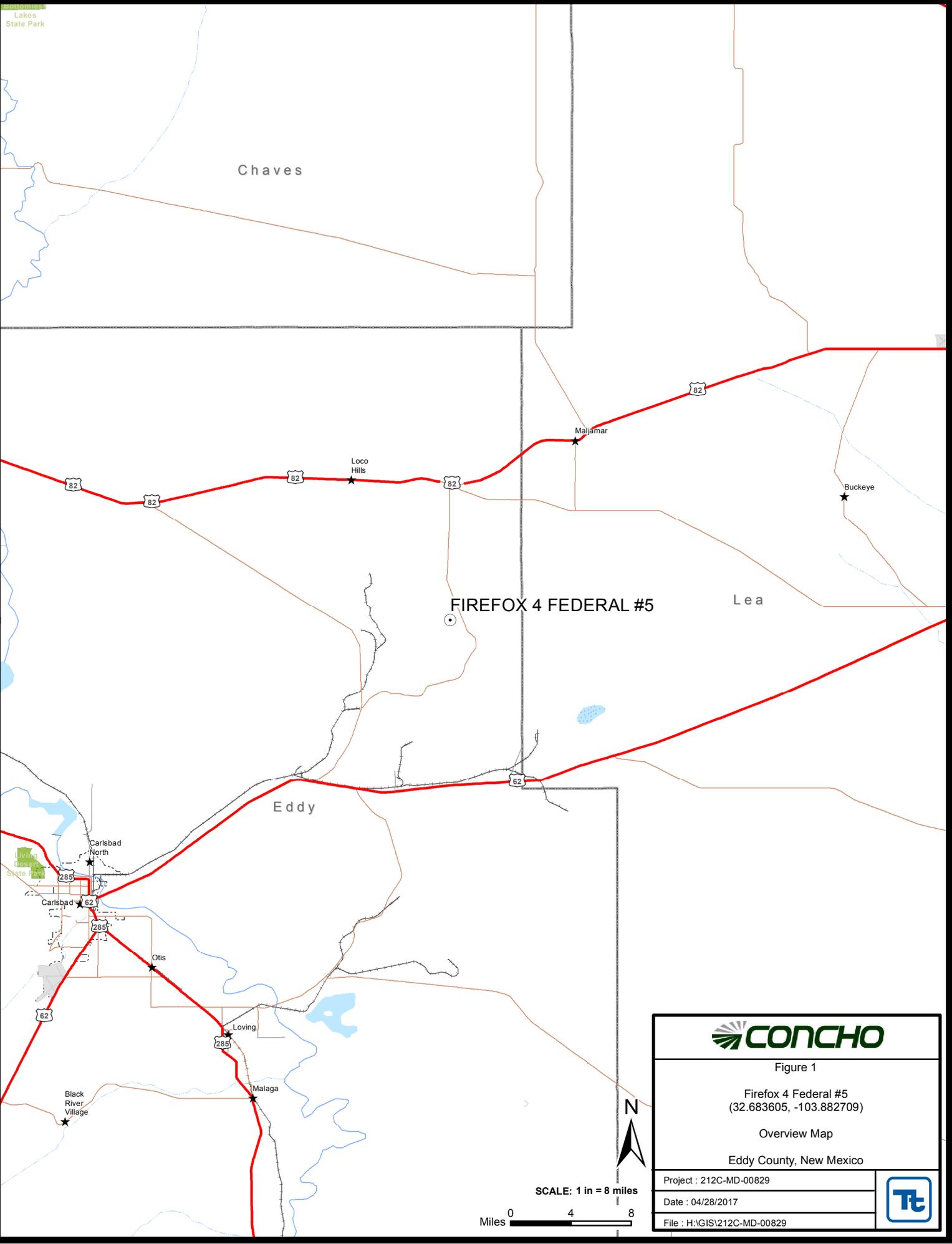
Clair Gonzales,
Geologist I

A handwritten signature in blue ink that reads 'Ike Tavarez'.

Ike Tavarez,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG
Rebecca Haskell - COG
Shelly Tucker – BLM

Figures



FIREFOX 4 FEDERAL #5



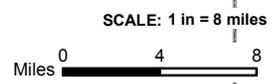
Figure 1

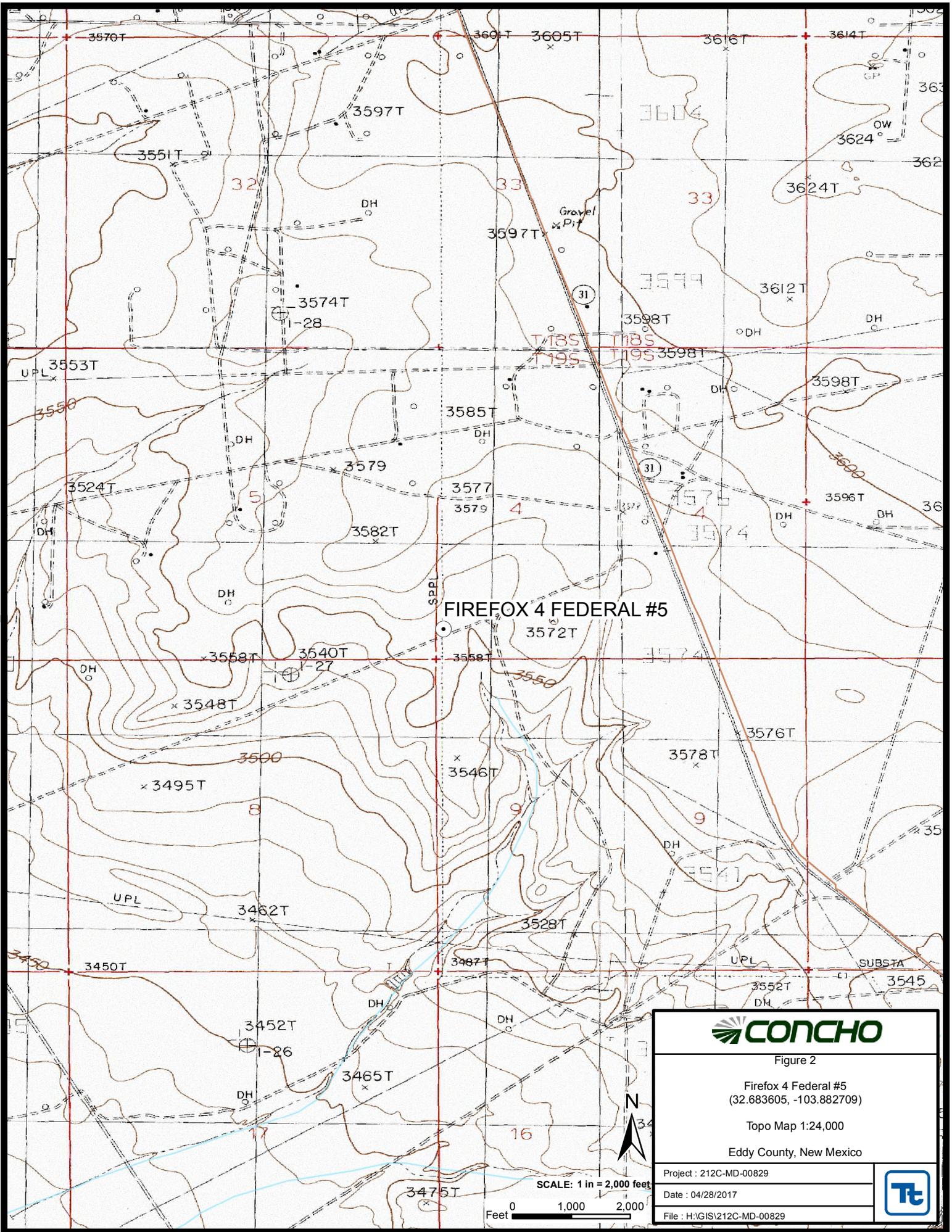
Firefox 4 Federal #5
(32.683605, -103.882709)

Overview Map

Eddy County, New Mexico

Project : 212C-MD-00829
Date : 04/28/2017
File : H:\GIS\212C-MD-00829







EXPLANATION

- TRENCH SAMPLE LOCATIONS
- SPILL AREA



SCALE: 1 IN = 50 FEET



Figure 3

Firefox 4 Federal #5
(32.683605, -103.882709)

Spill Assessment Map

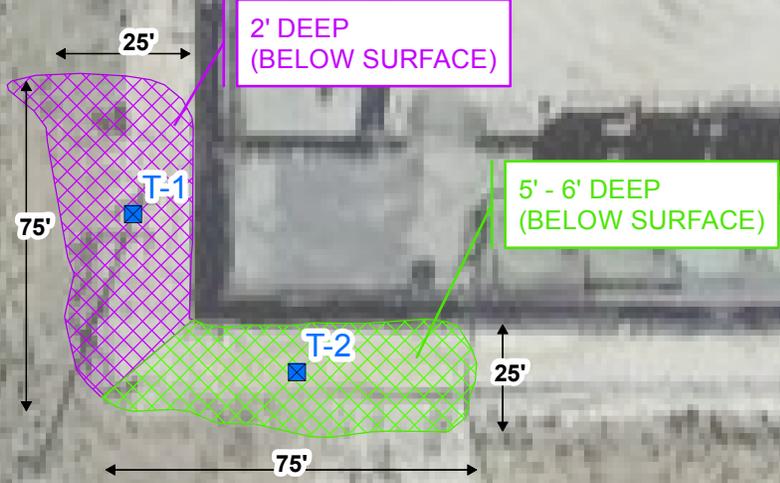
Eddy County, New Mexico

Project : 212C-MD-00829

Date : 04/28/2017

File : H:\GIS\212C-MD-00829





EXPLANATION

-  TRENCH SAMPLE LOCATIONS
-  PROPOSED EXCAVATION AREA



SCALE: 1 IN = 50 FEET

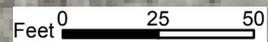


Figure 4

Firefox 4 Federal #5
(32.683605, -103.882709)

Proposed Excavation Area & Depths Map

Eddy County, New Mexico

Project : 212C-MD-00829
Date : 04/28/2017
File : H:\GIS\212C-MD-00829



Tables

Table 1
COG Operating LLC.
Firefox 4 Fed Com #5H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
T-1	12/19/2016	Surface	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	6,800
	"	1	X		-	-	-	-	-	-	-	-	8,000
	"	2	X		-	-	-	-	-	-	-	-	1,120
	"	3	X		-	-	-	-	-	-	-	-	48.0
	"	4	X		-	-	-	-	-	-	-	-	128
	"	5	X		-	-	-	-	-	-	-	-	112
	"	6	X		-	-	-	-	-	-	-	-	128
	"	8	X		-	-	-	-	-	-	-	-	256
"	10	X		-	-	-	-	-	-	-	-	208	
T-2	12/19/2016	Surface	X		107	1,750	1,857	<0.050	0.113	1.24	3.35	4.7	12,800
	"	1	X		-	-	-	-	-	-	-	-	1,490
	"	2	X		-	-	-	-	-	-	-	-	4,800
	"	3	X		-	-	-	-	-	-	-	-	336
	"	4	X		-	-	-	-	-	-	-	-	1,720
	"	5	X		-	-	-	-	-	-	-	-	9,200
	"	6	X		-	-	-	-	-	-	-	-	228
	"	7	X		-	-	-	-	-	-	-	-	3,480
"	8	X		-	-	-	-	-	-	-	-	720	
T-1 (T-2)	3/16/2017	Surface	X		-	-	-	-	-	-	-	-	7,970
	"	1	X		-	-	-	-	-	-	-	-	6,440
	"	3	X		-	-	-	-	-	-	-	-	1,800
	"	6	X		-	-	-	-	-	-	-	-	941
	"	8	X		-	-	-	-	-	-	-	-	307
	"	10	X		-	-	-	-	-	-	-	-	341
	"	12	X		-	-	-	-	-	-	-	-	31.3
"	14	X		-	-	-	-	-	-	-	-	<10.0	

(-) Not Analyzed

Proposed Excavation Depths

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

Form C-141
Revised August 8, 2011

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

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	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Firefox 4 Fed Com 5H Battery	Facility Type: Tank Battery

Surface Owner: Federal	Mineral Owner:	API No. 30-015-41423
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	04	19S	31E	670	South	250	West	Eddy

Latitude 32.684082 Longitude 103.8822098

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 8bbls	Volume Recovered: 7bbls
Source of Release: Water Line	Date and Hour of Occurrence: November 25, 2016 10:00 am	Date and Hour of Discovery: November 25, 2016 10:00 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A four (4) inch 45 degree fitting on a water line developed a hole. The 45 degree fitting was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release occurred on location but outside the battery berm. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

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>Rebecca Haskell</i>	<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Rebecca Haskell	Approved by Environmental Specialist:	
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: rhaskell@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 11/30/16 Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Firefox 4 Fed Com #5H
Eddy County, New Mexico

18 South		30 East				
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	23	44	
30	29	28	27	26	25	
31	32	33	34	35	36	

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

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

19 South		30 East				
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	23	24	
30	29	28	27	26	25	
90	31	32	33	34	35	36
115						

19 South		31 East				
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	180	20	21	22	23	24
30	29	28	27	26	25	25
31	32	33	101	34	35	36
			180			130
			140			

19 South		32 East				
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	135
19	20	21	22	23	24	dry
30	102	29	28	27	26	25
31	32	33	34	35	36	250
						365
						345

20 South		30 East				
6	5	3.5	4	3	2	1
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	23	24	
30	29	28	27	26	25	
31	32	33	34	35	36	
	170	191				
						6
						29
						150

20 South		31 East				
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	23	24	
30	29	28	27	26	25	
31	32	33	34	35	36	
					80	
						130

20 South		32 East				
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	
19	20	21	22	23	24	
30	29	28	27	26	25	
31	32	33	34	35	36	
					46	
						21.8
						89
						12.3
						9.9

- 88** New Mexico State Engineers Well Reports
- 105** USGS Well Reports
- 90** Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
 Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34** NMOCD - Groundwater Data
- 123** Tetra Tech installed temporary wells and field water level
- 143** NMOCD Groundwater map well location



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	Depth Well	Depth Water	Water Column
CP 00641 POD1	CP	ED		4	1	36	19S	31E		610247	3609634*	300	130	170
CP 00642 POD1	CP	ED		2	2	25	19S	31E		611025	3611657*	250		
CP 00722 POD1	CP	LE		4	3	3	28	19S	31E	605106	3610273*	200		
CP 00722 POD3	CP	LE		2	4	1	33	19S	31E	605519	3609673*	220	140	80
CP 00723 POD1	CP	ED		2	1	1	33	19S	31E	605111	3610071*	139		
CP 00725 POD1	CP	ED		1	3	3	28	19S	31E	604906	3610473*	231		
CP 00829 POD1	CP	LE		2	4	16	19S	31E		606165	3614009*	120		
CP 00873 POD1	CP	LE		1	1	19	19S	31E		601772	3613147*	340	180	160
CP 01554 POD1	CP	LE		2	2	1	22	19S	31E	607166	3613354	400		
CP 01554 POD2	CP	LE		2	2	1	22	19S	31E	607165	3613322	400		

Average Depth to Water: **150 feet**

Minimum Depth: **130 feet**

Maximum Depth: **180 feet**

Record Count: 10

PLSS Search:

Township: 19S

Range: 31E

*UTM location was derived from PLSS - see Help

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

Appendix C



Certificate of Analysis Summary 549473

COG Operating LLC, Artesia, NM

Project Name: Firefox 4 Fed Com #5H



Project Id:
Contact: Dakota Neel
Project Location: Edy County, NM

Date Received in Lab: Sat Mar-25-17 10:27 am
Report Date: 06-APR-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	549473-001	549473-002	549473-003	549473-004	549473-005	549473-006
	<i>Field Id:</i>	T1 - Surface	T1 - 1'	T1 - 3'	T1 - 6'	T1 - 8'	T1 - 10'
<i>Depth:</i>		1 ft	3 ft	6 ft	8 ft	10 ft	
<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
<i>Sampled:</i>	Mar-16-17 09:30	Mar-16-17 09:35	Mar-16-17 09:40	Mar-16-17 09:45	Mar-16-17 09:50	Mar-16-17 09:52	
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	<i>Extracted:</i>	Apr-04-17 17:00	Apr-04-17 17:00	Apr-04-17 17:00	Apr-04-17 17:00	Apr-04-17 09:32	Apr-04-17 09:32
	<i>Analyzed:</i>	Apr-05-17 05:23	Apr-05-17 05:45	Apr-05-17 05:52	Apr-05-17 06:00	Apr-05-17 00:36	Apr-05-17 00:43
	<i>Units/RL:</i>	mg/kg RL					
Chloride		7970 D 100	6440 D 100	1800 10.0	941 10.0	307 10.0	341 10.0

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

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 549473



COG Operating LLC, Artesia, NM

Project Name: Firefox 4 Fed Com #5H

Project Id:
Contact: Dakota Neel
Project Location: Edy County, NM

Date Received in Lab: Sat Mar-25-17 10:27 am
Report Date: 06-APR-17
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	549473-007	549473-008				
	Field Id:	T1 - 12'	T1 - 14'				
	Depth:	12 ft	14 ft				
	Matrix:	SOIL	SOIL				
	Sampled:	Mar-16-17 09:58	Mar-16-17 10:00				
Inorganic Anions by EPA 300/300.1 SUB: TX104704215	Extracted:	Apr-04-17 16:00	Apr-04-17 16:00				
	Analyzed:	Apr-05-17 01:05	Apr-05-17 01:12				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		31.3 10.0	<10.0 10.0				

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

Kelsey Brooks
Project Manager

Analytical Report 549473

for
COG Operating LLC

Project Manager: Dakota Neel
Firefox 4 Fed Com #5H

06-APR-17

Collected By: Dakota Neel



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



06-APR-17

Project Manager: **Dakota Neel**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **549473**
Firefox 4 Fed Com #5H
Project Address: Edy County, NM

Dakota Neel:

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) 549473. 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. 549473 will be filed for 60 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,

Kelsey Brooks

Project Manager

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Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 549473



COG Operating LLC, Artesia, NM

Firefox 4 Fed Com #5H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1 - Surface	S	03-16-17 09:30	N/A	549473-001
T1 - 1'	S	03-16-17 09:35	- 1 ft	549473-002
T1 - 3'	S	03-16-17 09:40	- 3 ft	549473-003
T1 - 6'	S	03-16-17 09:45	- 6 ft	549473-004
T1 - 8'	S	03-16-17 09:50	- 8 ft	549473-005
T1 - 10'	S	03-16-17 09:52	- 10 ft	549473-006
T1 - 12'	S	03-16-17 09:58	- 12 ft	549473-007
T1 - 14'	S	03-16-17 10:00	- 14 ft	549473-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Firefox 4 Fed Com #5H

Project ID:
Work Order Number(s): 549473

Report Date: 06-APR-17
Date Received: 03/25/2017

Sample receipt non conformances and comments:

please email results to:

rgrubbs@concho.com rhaskell@concho.com alieb@concho.com

Sample receipt non conformances and comments per sample:

None

COG Operating LLC, Artesia, NM
Firefox 4 Fed Com #5H

Sample Id: T1 - Surface	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-001	Date Collected: 03.16.17 09.30	
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 17.00	Basis: Wet Weight
Seq Number: 3014107		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7970	100	mg/kg	04.05.17 16.56	D	10

COG Operating LLC, Artesia, NM Firefox 4 Fed Com #5H

Sample Id: T1 - 1'	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-002	Date Collected: 03.16.17 09.35	Sample Depth: 1 ft
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 17.00	Basis: Wet Weight
Seq Number: 3014107		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6440	100	mg/kg	04.05.17 17.04	D	10

COG Operating LLC, Artesia, NM

Firefox 4 Fed Com #5H

Sample Id: T1 - 3'	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-003	Date Collected: 03.16.17 09.40	Sample Depth: 3 ft
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 17.00	Basis: Wet Weight
Seq Number: 3014107		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1800	10.0	mg/kg	04.05.17 05.52		1

COG Operating LLC, Artesia, NM Firefox 4 Fed Com #5H

Sample Id: T1 - 6'	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-004	Date Collected: 03.16.17 09.45	Sample Depth: 6 ft
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 17.00	Basis: Wet Weight
Seq Number: 3014107		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	941	10.0	mg/kg	04.05.17 06.00		1

COG Operating LLC, Artesia, NM
Firefox 4 Fed Com #5H

Sample Id: T1 - 8'	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-005	Date Collected: 03.16.17 09.50	Sample Depth: 8 ft
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 09.32	Basis: Wet Weight
Seq Number: 3014103		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	307	10.0	mg/kg	04.05.17 00.36		1

COG Operating LLC, Artesia, NM

Firefox 4 Fed Com #5H

Sample Id: T1 - 10'	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-006	Date Collected: 03.16.17 09.52	Sample Depth: 10 ft
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 09.32	Basis: Wet Weight
Seq Number: 3014103		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	341	10.0	mg/kg	04.05.17 00.43		1

COG Operating LLC, Artesia, NM

Firefox 4 Fed Com #5H

Sample Id: T1 - 12'	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-007	Date Collected: 03.16.17 09.58	Sample Depth: 12 ft
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 16.00	Basis: Wet Weight
Seq Number: 3014103		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	31.3	10.0	mg/kg	04.05.17 01.05		1

COG Operating LLC, Artesia, NM

Firefox 4 Fed Com #5H

Sample Id: T1 - 14'	Matrix: Soil	Date Received: 03.25.17 10.27
Lab Sample Id: 549473-008	Date Collected: 03.16.17 10.00	Sample Depth: 14 ft
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: ALA		% Moisture:
Analyst: ALA	Date Prep: 04.04.17 16.00	Basis: Wet Weight
Seq Number: 3014103		SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	04.05.17 01.12	U	1

- 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

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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(432) 563-1800	(432) 563-1713
(602) 437-0330	



COG Operating LLC

Firefox 4 Fed Com #5H

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014002

Matrix: Solid

Prep Method: E300P

MB Sample Id: 722515-1-BLK

LCS Sample Id: 722515-1-BKS

Date Prep: 04.03.17

LCSD Sample Id: 722515-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<2.00	20.0	20.2	101	19.8	99	80-120	2	20	mg/kg	04.03.17 21:23	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014103

Matrix: Solid

Prep Method: E300P

MB Sample Id: 722589-1-BLK

LCS Sample Id: 722589-1-BKS

Date Prep: 04.04.17

LCSD Sample Id: 722589-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	100	97.1	97	96.9	97	80-120	0	20	mg/kg	04.05.17 00:21	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014107

Matrix: Solid

Prep Method: E300P

MB Sample Id: 722590-1-BLK

LCS Sample Id: 722590-1-BKS

Date Prep: 04.04.17

LCSD Sample Id: 722590-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	100	99.2	99	99.1	99	80-120	0	20	mg/kg	04.05.17 04:24	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014002

Matrix: Solid

Prep Method: E300P

Parent Sample Id: 549470-012

MS Sample Id: 549470-012 S

Date Prep: 04.03.17

MSD Sample Id: 549470-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8090	100	7970	0	7980	0	80-120	0	20	mg/kg	04.03.17 22:09	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014002

Matrix: Solid

Prep Method: E300P

Parent Sample Id: 549470-020

MS Sample Id: 549470-020 S

Date Prep: 04.03.17

MSD Sample Id: 549470-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.6	100	148	104	147	103	80-120	1	20	mg/kg	04.04.17 00:20	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014103

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549474-008

MS Sample Id: 549474-008 S

Date Prep: 04.04.17

MSD Sample Id: 549474-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	168	100	270	102	268	100	80-120	1	20	mg/kg	04.05.17 02:33	



COG Operating LLC
Firefox 4 Fed Com #5H

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014107

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549472-005

MS Sample Id: 549472-005 S

Date Prep: 04.04.17

MSD Sample Id: 549472-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	925	100	1000	75	1000	75	80-120	0	20	mg/kg	04.05.17 05:01	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014107

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549475-003

MS Sample Id: 549475-003 S

Date Prep: 04.04.17

MSD Sample Id: 549475-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3260	100	3280	20	3270	10	80-120	0	20	mg/kg	04.05.17 06:29	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3014103

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 549473-006

MS Sample Id: 549473-006 S

Date Prep: 04.04.17

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Chloride	341	100	437	96	80-120	mg/kg	04.05.17 00:50	

Client: COG Operating LLC

Date/ Time Received: 03/25/2017 10:27:00 AM

Work Order #: 549473

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)?	.9
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	N/A
#21 VOC samples have zero headspace?	N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by: Jessica Kramer
 Jessica Kramer

Date: 03/27/2017

Checklist reviewed by: Kelsey Brooks
 Kelsey Brooks

Date: 03/27/2017



January 05, 2017

DAKOTA NEEL
COG OPERATING
P. O. BOX 1630
ARTESIA, NM 88210

RE: FIREFOX 4 FED COM #5H

Enclosed are the results of analyses for samples received by the laboratory on 12/29/16 12:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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

Analytical Results For:

 COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

Received:	12/29/2016	Sampling Date:	12/19/2016
Reported:	01/05/2017	Sampling Type:	Soil
Project Name:	FIREFOX 4 FED COM #5H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Angela Cabrera
Project Location:	EDDY COUNTY		

Sample ID: T1 - SURFACE (H602890-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/30/2016	ND	1.82	91.1	2.00	2.19	
Toluene*	<0.050	0.050	12/30/2016	ND	1.85	92.3	2.00	2.27	
Ethylbenzene*	<0.050	0.050	12/30/2016	ND	1.90	95.0	2.00	2.67	
Total Xylenes*	<0.150	0.150	12/30/2016	ND	5.54	92.3	6.00	2.61	
Total BTEX	<0.300	0.300	12/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6800	16.0	12/31/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/30/2016	ND	184	92.0	200	3.90	
DRO >C10-C28	<10.0	10.0	12/30/2016	ND	190	95.0	200	1.29	

Surrogate: 1-Chlorooctane 99.9 % 35-147

Surrogate: 1-Chlorooctadecane 112 % 28-171

Sample ID: T1 - 1' (H602890-02)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8000	16.0	12/31/2016	ND	416	104	400	0.00	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 12/29/2016
 Reported: 01/05/2017
 Project Name: FIREFOX 4 FED COM #5H
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY

 Sampling Date: 12/19/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Angela Cabrera

Sample ID: T1 - 2' (H602890-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T1 - 3' (H602890-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T1 - 4' (H602890-05)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T1 - 5' (H602890-06)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T1 - 6' (H602890-07)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	12/31/2016	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 12/29/2016
 Reported: 01/05/2017
 Project Name: FIREFOX 4 FED COM #5H
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY

 Sampling Date: 12/19/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Angela Cabrera

Sample ID: T1 - 8' (H602890-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T1 - 10' (H602890-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	12/31/2016	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 12/29/2016
 Reported: 01/05/2017
 Project Name: FIREFOX 4 FED COM #5H
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY

 Sampling Date: 12/19/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Angela Cabrera

Sample ID: T2 - SURFACE (H602890-10)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/30/2016	ND	1.82	91.1	2.00	2.19	
Toluene*	0.113	0.050	12/30/2016	ND	1.85	92.3	2.00	2.27	
Ethylbenzene*	1.24	0.050	12/30/2016	ND	1.90	95.0	2.00	2.67	
Total Xylenes*	3.35	0.150	12/30/2016	ND	5.54	92.3	6.00	2.61	
Total BTEX	4.70	0.300	12/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12800	16.0	12/31/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	107	10.0	12/30/2016	ND	184	92.0	200	3.90	
DRO >C10-C28	1750	10.0	12/30/2016	ND	190	95.0	200	1.29	

Surrogate: 1-Chlorooctane 116 % 35-147

Surrogate: 1-Chlorooctadecane 125 % 28-171

Sample ID: T2 - 1' (H602890-11)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1490	16.0	12/31/2016	ND	416	104	400	0.00	QM-07

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 12/29/2016
 Reported: 01/05/2017
 Project Name: FIREFOX 4 FED COM #5H
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY

 Sampling Date: 12/19/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Angela Cabrera

Sample ID: T2 - 2' (H602890-12)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4800	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T2 - 3' (H602890-13)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T2 - 4' (H602890-14)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1720	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T2 - 5' (H602890-15)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9200	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T2 - 6' (H602890-16)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	12/31/2016	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

 Received: 12/29/2016
 Reported: 01/05/2017
 Project Name: FIREFOX 4 FED COM #5H
 Project Number: NONE GIVEN
 Project Location: EDDY COUNTY

 Sampling Date: 12/19/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Angela Cabrera

Sample ID: T2 - 7' (H602890-17)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3480	16.0	12/31/2016	ND	416	104	400	0.00	

Sample ID: T2 - 8' (H602890-18)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	12/31/2016	ND	416	104	400	0.00	

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Notes and Definitions

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



Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

20F

BILL TO

ANALYSIS REQUEST

Company Name: COG Operating LLC
 Project Manager: Dakota Neel
 Address: 2208 West Main
 City: Artesia State: NM Zip: 88210
 Phone #: 432-215-2783 Fax #:
 Project #: Project Owner:
 Project Name: FIREFOX 4 FEDERAL #5
 Project Location:
 Sampler Name: Dakota Neel & Aaron Lieb
 P.O. #:
 Company: COG Operating LLC
 Attn: Robert McNeill
 Address: 600 W Illinois
 City: Midland
 State: TX Zip: 79701
 Phone #: (432) 221-0388
 Fax #:

Lab I.D.	Sample I.D.	FOR LAB USE ONLY	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.			DATE	TIME	BTEX	TPH	Chloride
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :					
H16028910																		
			T2 - SURFACE															
			T2 - 1'															
			T2 - 2'															
			T2 - 3'															
			T2 - 4'															
			T2 - 5'															
			T2 - 6'															
			T2 - 7'															
			T2 - 8'															

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Relinquished By: *D. O'S*
 Date: 12-29-16
 Time: 13:05
 Received By: *Amela Obere*
 Date:
 Time:
 Phone Result: Yes No Add'l Phone #:
 Fax Result: Yes No Add'l Fax #:
 REMARKS:
 dneel2@concho.com
 rgrubbs@concho.com

Delivered By: (Circle One) **#75**
 Sampler - UPS - Bus - Other: **5.22c**
 Sample Condition: Cool Intact Yes No
 CHECKED BY: *[Signature]*
 Please only run deeper horizons for BTEX AND TPH if Benzene exceeds 10ppm, BTEX exceeds 50ppm, and TPH exceeds 5000ppm.

FORM 000-K-2-0
 s. Please fax written changes to 575-393-2476