SITE INFORMATION

Report Type: Closure Report 2RP-4077

General Site Information:						
Site:	**Cottonmouth 23 Federal Com 2H Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit A**	**Sec. 22**	**T 26S**	**R 28E**		
Lease Number:	**API No. 30-015-43015**					
County:	**Eddy County**					
GPS:	**32.034786174º N**			**104.06753455º W**		
Surface Owner:	**Federal**					
Mineral Owner:						
Directions:	From intersection of US 285 & Whites City Rd in Eddy county, travel WEST on Whites City Rd for approx. 0.95 mi, turn SOUTH onto lease rd for 1.10 mi, turn WEST for 0.60 mi, turn SOUTH for 1.0 mi, turn EAST for 0.25 mi to location.					

Release Data:	
Date Released:	1/11/2017
Type Release:	Oil & Produced Water
Source of Contamination:	Flare
Fluid Released:	1 bbl oil & 9 bbls water
Fluids Recovered:	0.5 bbl oil & 7 bbls water

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) 682-4559
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	*20*	
50-99 ft	10	
>100 ft.	***0***	*120'*
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:	***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

TETRA TECH

August 16, 2017

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

Re: Closure Request for the COG Operating LLC., Cottonmouth 23 Federal Com 2H Battery, Unit A, Section 22, Township 26 South, Range 28 East, Eddy County, New Mexico. 2RP-4077.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess a spill that occurred at the Cottonmouth 23 Federal Com 2H Battery, Unit A, Section 22, Township 26 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.0347861º, W 104.067534º. 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 January 11, 2017, and released approximately one (1) barrel of oil and nine (9) barrels of produced water due to fluid flowing through the flare, which resulted in a ground fire. Approximately one-half (0.5) a bbl of oil and seven (7) bbls of produced water was recovered. The release occurred around the flare and measured approximately 35' x 80'. The initial C-141 form is included in Appendix A.

Groundwater

According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 75' and 100' below surface. However, one (1) water well is listed in Section 22 on the New Mexico Office of the State Engineer's website and shows a depth to groundwater of 120' below surface. Additionally, multiple wells are listed in Section 14 with depths to groundwater of 120' and one (1) well is listed in Section 15 with a depth to groundwater of 140' below surface.

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

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

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 January 24, 2017, COG personnel were onsite to evaluate and sample the release area. Using a backhoe, one (1) trench (T-1) was installed in the release area to a total depth of 14.0' below surface. 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 laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The trench location is shown on Figure 3.

Referring to Table 1, none of the samples collected at trench (T-1) exceeded the RRALs, for TPH, benzene or total BTEX. Chloride concentrations detected were not significant in the subsurface soils. The chloride concentrations ranged from 144 mg/kg (4.0') to 752 mg/kg (14.0') below surface. None of the samples detected chloride concentration greater than 600 mg/kg, except for the bottom hole sample at 14.0' which spiked to 752 mg/kg.

Conclusion

Based on the laboratory results, all of the samples were below the RRALs for TPH, benzene, and total BTEX. The facility, constructed in 2015, is approximately 0.5 miles north of the Delaware River. The chloride spike detected at 14.0' in the deeper soils appears to be natural to the area. Additionally, there was not a significant chloride impact in the shallow soils, which indicate the spike is either natural or possibly laboratory error. Based on the results, COG requests closure of this spill issue. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment activities for this site, please call at (432) 682-4559.

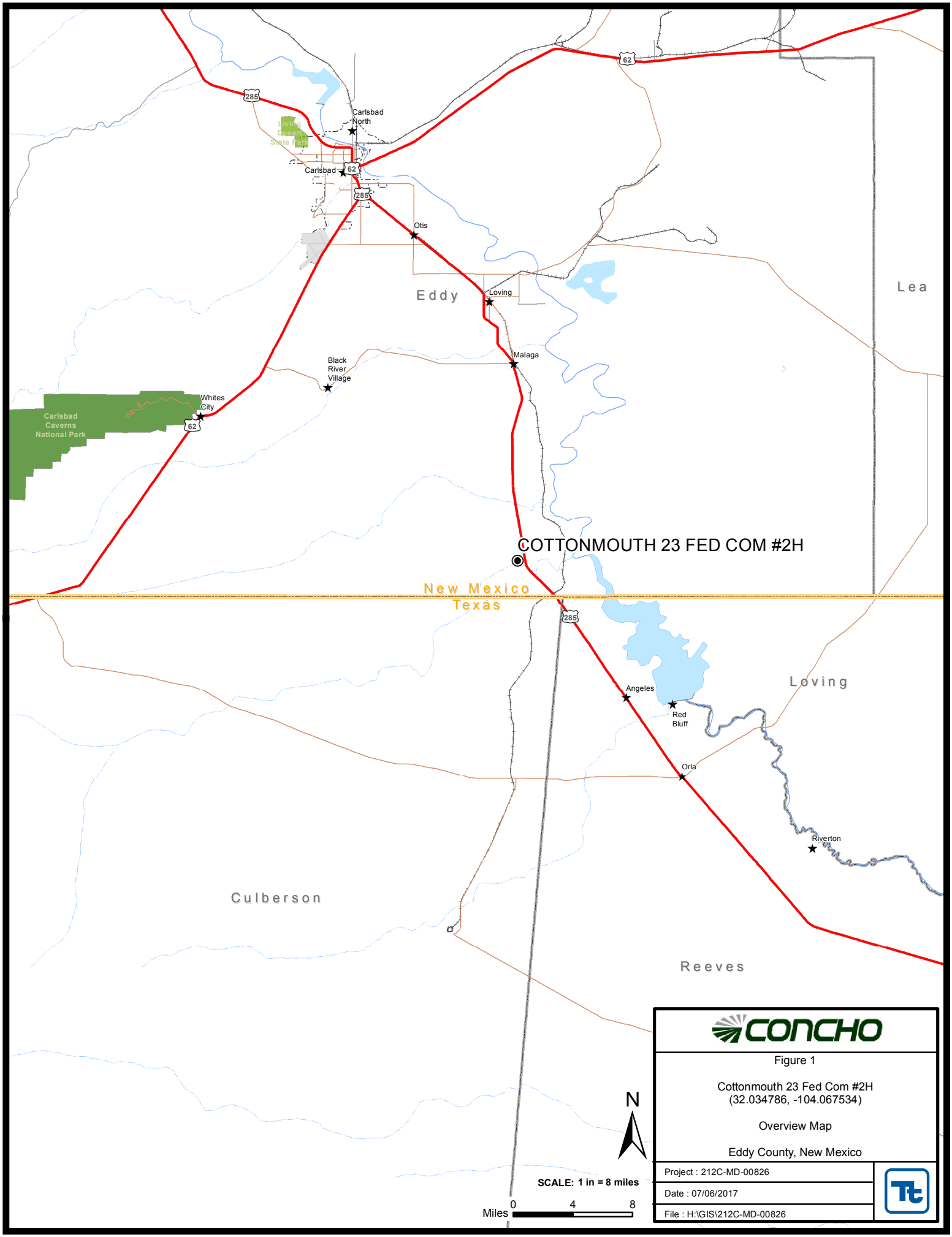
Respectfully submitted,
TETRA TECH

Ike Tavarez, P.G.
Senior Project Manager

Clair Gonzales,
Geologist I

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

Figures



CONCHO

Figure 1

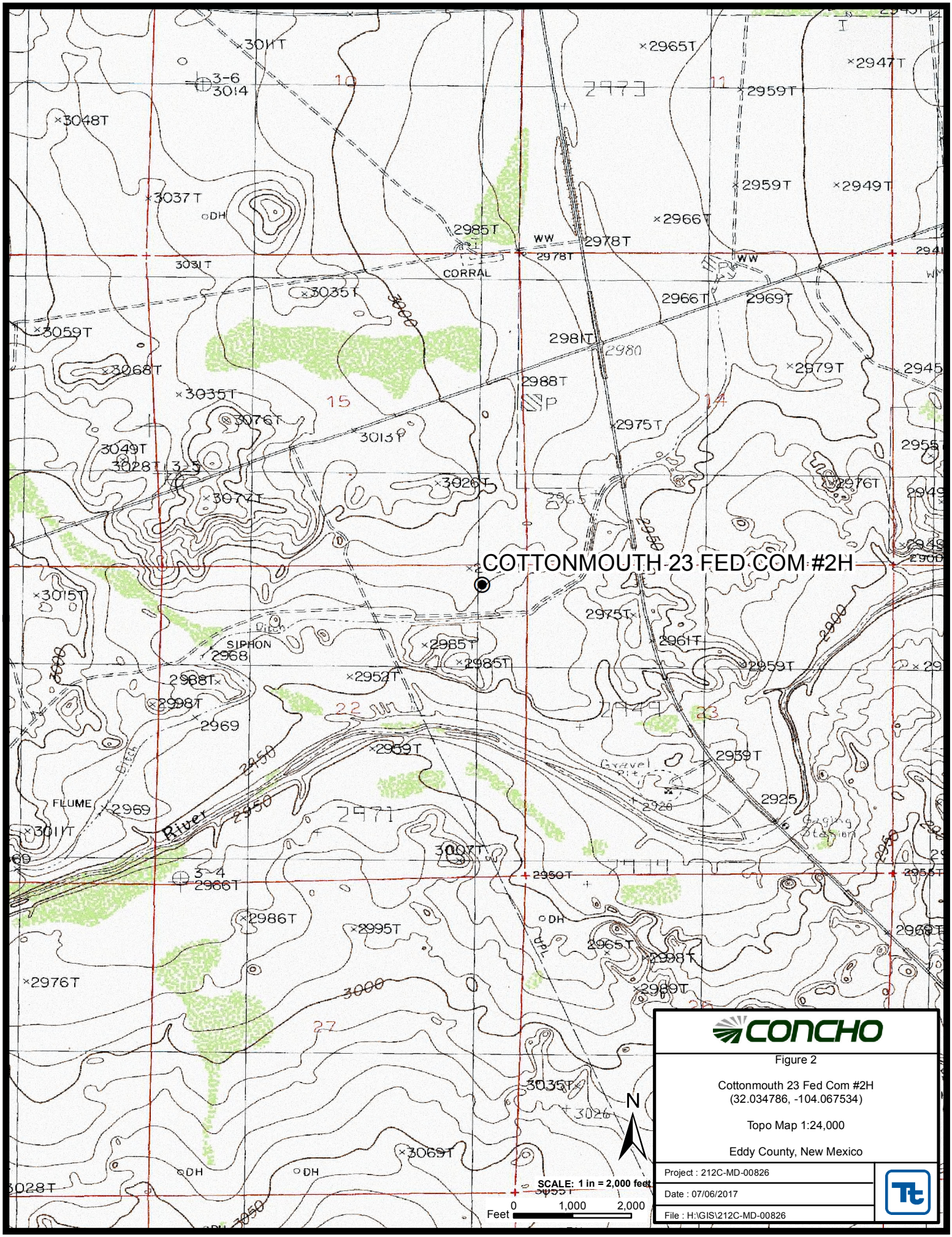
Cottonmouth 23 Fed Com #2H
(32.034786, -104.067534)

Overview Map

Eddy County, New Mexico

Project : 212C-MD-00826	
Date : 07/06/2017	
File : H:\GIS\212C-MD-00826	

Mapped By: Isabel Marmolejo



CONCHO

Figure 2

Cottonmouth 23 Fed Com #2H
(32.034786, -104.067534)

Topo Map 1:24,000

Eddy County, New Mexico

Project : 212C-MD-00826

Date : 07/06/2017

File : H:\GIS\212C-MD-00826

Mapped By: Isabel Marmolejo

CONCHO

Figure 3

Cottonmouth 23 Fed Com #2H
(32.034786, -104.067534)

Spill Assessment Map

Eddy County, New Mexico

Project : 212C-MD-00826	
Date : 07/06/2017	
File : H:\GIS\212C-MD-00826	

Mapped By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Cottonmouth 23 Fed Com #2H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
T-1	1/24/2017	1	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	576
	"	2	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	592
	"	3	X		<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	288
	"	4	X		-	-	-	-	-	-	-	-	144
	"	5	X		-	-	-	-	-	-	-	-	192
	"	6	X		-	-	-	-	-	-	-	-	192
	"	8	X		-	-	-	-	-	-	-	-	496
	"	10	X		-	-	-	-	-	-	-	-	400
	"	12	X		-	-	-	-	-	-	-	-	176
	"	14	X		-	-	-	-	-	-	-	-	752

(-) Not Analyzed

Appendix A

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 12 2017

RECEIVED

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 August 8, 2011

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

Release Notification and Corrective Action

nAB1701355094

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC 217955		Contact:	Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701		Telephone No.	432-683-7443
Facility Name: Cottonmouth 23 Federal Com 2H Battery		Facility Type:	Tank Battery
Surface Owner: Federal	Mineral Owner:		API No. 30-015-43015

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	22	26S	28E	190	North	330	East	Eddy

Latitude 32.034786174 **Longitude** 104.06753455

NATURE OF RELEASE

Type of Release: Oil and Produced Water (Fire)	Volume of Release: 1 bbls Oil & 9 bbls PW	Volume Recovered: 0.5 bbls Oil & 7 bbls PW
Source of Release: Flare	Date and Hour of Occurrence: January 11, 2017 8:00 pm	Date and Hour of Discovery: January 11, 2017 8:00 pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher – NMOCD / Shelly Tucker - BLM	
By Whom? Rebecca Haskell	Date and Hour: January 12, 2017 Time per this email 1:21pm (email)	
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.*

The release was caused by fluid going through the flare causing a fire. The fire quickly extinguished itself due to the limited amount of fluid that excaped the flare.

Describe Area Affected and Cleanup Action Taken.*

The release was on location. 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: Rebecca Haskell		OIL CONSERVATION DIVISION	
Printed Name:	Rebecca Haskell	Signed By Mike Bratcher Approved by Environmental Specialist:	
Title:	Senior HSE Coordinator	Approval Date: 1/13/17	Expiration Date: N/A
E-mail Address:	rhaskell@concho.com	Conditions of Approval: See attached	Attached ☐
Date: January 12, 2017	Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

2RP-4077

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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 October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company **COG Operating LLC**	Contact **Robert McNeil**
Address **600 West Illinois Ave., Midland, TX 79701**	Telephone No. **(432) 683-7443**
Facility Name Cottonmouth 23 Federal Com 2H Battery	Facility Type **Tank Battery**

Surface Owner: Federal	Mineral Owner	API No. 30-015-43015

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
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Source of Release: Flare	Date and Hour of Occurrence 1/11/17 8:00 pm	Date and Hour of Discovery 1/11/17 8:00 pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Mike Bratcher – NMOCD / Shelly Tucker - BLM**	
By Whom? Rebecca Haskell	Date and Hour 1/12/17 1:21 pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

The release was caused by fluid going through the flare causing a fire. The fire quickly extinguished itself due to the limited amount of fluid that escaped the flare. A vacuum truck was used to remove all freestanding fluids.

Describe Area Affected and Cleanup Action Taken.*

COG inspected site and collected samples to define spills extent. None of the samples collected showed impact above the RRAL's. Tetra Tech prepared closure report and submitted to NMOCD for review.

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 District Supervisor:	
Printed Name: Ike Tavarez (Agent for COG)		
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 07/06/17 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Cottonmouth 23 Fed Com 2H Battery
Eddy County, New Mexico

25 South 27 East

6	5	4	3	2	1
7 Artesia	8	9	10	11	12 92
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33 19	34	35	36

25 South 28 East

6	5 59	4 35	3 32	2	1 Site
7	8	9	10	11	12
18 67	17	16	15 48 49	14	13
19	20 96	21	22	23	24
30	29 15	28 90	27	26 40	25
31	32	33	34	35	36 40

25 South 29 East

6 40	5	4	3	2	1
7	8	9	10 40	11	12
18	17	16	15 60	14	13
19	20	21	22	23	24
30 30	29	28	27	26	25
31	32 115	33	34	35	36

26 South 27 East

6	5 12	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 35
19	20	21	22 50	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 28 East

6	5	4	3	2 120 21	1
7	8	9	10	11	12 100
18	17	16	15 140	14 120	13 56
19	20	21	22 120	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 29 East

6	5 78	4	3	2	1
7	8	9	10	11	12
18	17	16 125	15	14	13
19	20	21	22 57 69	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Depth Well	Depth Water	Water Column
C 01668			ED		3	3	12	26S	28E	589957	3546554*	250	100	150
C 02160			ED	4	1	2	14	26S	28E	589243	3546044*	300	120	180
C 02160 S			ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
C 02160 S2			ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
C 02160 S3			ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
C 02160 S4			ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
C 02160 S5			ED	1	1	1	14	26S	28E	588225	3546237*	300	120	180
C 02160 S6			ED	3	3	1	14	26S	28E	588232	3545635*	300	120	180
C 02160 S7			ED	3	3	1	22	26S	28E	586638	3543998*	300	120	180
C 02160 S8			ED	2	3	3	12	26S	28E	590056	3546653*	200	120	80
C 02160 S9			ED	3	3	2	02	26S	28E	589020	3548868*	300	120	180
C 02477		CUB	ED		1	1	03	26S	28E	586687	3549347*	150		
C 02478		CUB	ED		2	1	05	26S	28E	583848	3549325*	100		
C 02479		CUB	ED		4	4	10	26S	28E	587909	3546534*	200		
C 02480		CUB	ED		4	4	10	26S	28E	587909	3546534*	150		
C 02481		CUB	ED		1	1	14	26S	28E	588326	3546138*	200		
C 02894		C	ED	2	2	3	12	26S	28E	590458	3547061*	240		
C 02924		C	ED	1	3	2	11	26S	28E	589032	3547451*			
C 04022 POD1		CUB	ED	4	4	2	15	26S	28E	588082	3545647	220	140	80
C 04022 POD2		CUB	ED	2	2	2	27	26S	28E	588106	3543082	250	20	230

Average Depth to Water: **112 feet**

Minimum Depth: **20 feet**

Maximum Depth: **140 feet**

Record Count: 20

PLSS Search:

Township: 26S **Range:** 28E

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

Appendix C

CARDINAL Laboratories

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

January 31, 2017

AARON LIEB

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: COTTONMOUTH 23 FEDERAL #2H

Enclosed are the results of analyses for samples received by the laboratory on 01/25/17 12:15.

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 accreditated 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,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING
AARON LIEB
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	01/25/2017	Sampling Date:	01/24/2017
Reported:	01/31/2017	Sampling Type:	Soil
Project Name:	COTTONMOUTH 23 FEDERAL #2H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Angela Cabrera
Project Location:	NOT GIVEN		

Sample ID: T1 - 1' (H700187-01)

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	01/30/2017	ND	1.93	96.7	2.00	0.0680	
Toluene*	<0.050	0.050	01/30/2017	ND	1.95	97.5	2.00	0.0817	
Ethylbenzene*	<0.050	0.050	01/30/2017	ND	2.01	100	2.00	0.340	
Total Xylenes*	<0.150	0.150	01/30/2017	ND	5.70	95.1	6.00	0.184	
Total BTEX	<0.300	0.300	01/30/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**576**	16.0	01/28/2017	ND	448	112	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	01/27/2017	ND	199	99.7	200	1.81	
DRO >C10-C28	<10.0	10.0	01/27/2017	ND	209	104	200	1.15	

Surrogate: 1-Chlorooctane *82.6 %* *35-147*

Surrogate: 1-Chlorooctadecane *94.4 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING
AARON LIEB
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	01/25/2017	Sampling Date:	01/24/2017
Reported:	01/31/2017	Sampling Type:	Soil
Project Name:	COTTONMOUTH 23 FEDERAL #2H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Angela Cabrera
Project Location:	NOT GIVEN		

Sample ID: T1 - 2' (H700187-02)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/31/2017	ND	1.93	96.7	2.00	0.0680	
Toluene*	<0.050	0.050	01/31/2017	ND	1.95	97.5	2.00	0.0817	
Ethylbenzene*	<0.050	0.050	01/31/2017	ND	2.01	100	2.00	0.340	
Total Xylenes*	<0.150	0.150	01/31/2017	ND	5.70	95.1	6.00	0.184	
Total BTEX	<0.300	0.300	01/31/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**592**	16.0	01/28/2017	ND	448	112	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	01/27/2017	ND	179	89.3	200	5.62	
DRO >C10-C28	<10.0	10.0	01/27/2017	ND	185	92.4	200	1.08	

Surrogate: 1-Chlorooctane *84.7 %* *35-147*

Surrogate: 1-Chlorooctadecane *100 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING
AARON LIEB
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	01/25/2017	Sampling Date:	01/24/2017
Reported:	01/31/2017	Sampling Type:	Soil
Project Name:	COTTONMOUTH 23 FEDERAL #2H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Angela Cabrera
Project Location:	NOT GIVEN		

Sample ID: T1 - 3' (H700187-03)

BTEX 8021B mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/31/2017	ND	1.93	96.7	2.00	0.0680	
Toluene*	<0.050	0.050	01/31/2017	ND	1.95	97.5	2.00	0.0817	
Ethylbenzene*	<0.050	0.050	01/31/2017	ND	2.01	100	2.00	0.340	
Total Xylenes*	<0.150	0.150	01/31/2017	ND	5.70	95.1	6.00	0.184	
Total BTEX	<0.300	0.300	01/31/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**288**	16.0	01/28/2017	ND	448	112	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	01/27/2017	ND	194	97.2	200	1.07	
DRO >C10-C28	<10.0	10.0	01/27/2017	ND	221	111	200	0.0303	

Surrogate: 1-Chlorooctane *96.2 %* *35-147*

Surrogate: 1-Chlorooctadecane *95.0 %* *28-171*

Sample ID: T1 - 4' (H700187-04)

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	01/28/2017	ND	448	112	400	0.00	

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING
AARON LIEB
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	01/25/2017	Sampling Date:	01/24/2017
Reported:	01/31/2017	Sampling Type:	Soil
Project Name:	COTTONMOUTH 23 FEDERAL #2H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Angela Cabrera
Project Location:	NOT GIVEN		

Sample ID: T1 - 5' (H700187-05)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	01/28/2017	ND	448	112	400	0.00	

Sample ID: T1 - 6' (H700187-06)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	01/28/2017	ND	448	112	400	0.00	

Sample ID: T1 - 8' (H700187-07)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	01/28/2017	ND	448	112	400	0.00	

Sample ID: T1 - 10' (H700187-08)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**400**	16.0	01/28/2017	ND	448	112	400	0.00	

Sample ID: T1 - 12' (H700187-09)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**176**	16.0	01/28/2017	ND	448	112	400	0.00	

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING
AARON LIEB
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	01/25/2017	Sampling Date:	01/24/2017
Reported:	01/31/2017	Sampling Type:	Soil
Project Name:	COTTONMOUTH 23 FEDERAL #2H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Angela Cabrera
Project Location:	NOT GIVEN		

Sample ID: T1 - 14' (H700187-10)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**752**	16.0	01/28/2017	ND	448	112	400	0.00	

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CARDINAL Laboratories

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Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	COG Operating LLC
Project Manager:	Aaron Lieb
Address:	2407 Pecos Avenue
City:	Artesia **State:** NM **Zip** 88210
Phone #:	575-748-1553 **Fax #:**
Project #:	**Project Owner:**
Project Name:	Cottonmouth 23 Federal #2H
Project Location:	
Sampler Name:	Aaron Lieb

BILL TO

P.O. #:	
Company:	COG Operating LLC
Attn:	Robert McNeill
Address:	600 W Illinois
City:	Midland
State: TX **Zip:** 79701
Phone #:	(432) 221-0388
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	BTEX	TPH	Chloride
H700187- 01	T1-1'										x		1/24/17	10:00AM	X	X	X
02	T1-2'										x		1/24/17	10:00AM	X	X	X
03	T1-3'										x		1/24/17	10:00AM	X	X	X
04	T1-4'										x		1/24/17	10:00AM			X
05	T1-5'										x		1/24/17	10:00AM			X
06	T1-6'										x		1/24/17	10:00AM			X
07	T1-8'										x		1/24/17	10:00AM			X
08	T1-10'										x		1/24/17	10:00AM			X
09	T1-12'										x		1/24/17	10:00AM			X
10	T1-14'										x		1/24/17	10:00AM			X

Relinquished By:	**Date:** 1-25-17	**Received By:**	
	Time: 12:15		
Relinquished By:	**Date:**	**Received By:**	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.6°C

Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No

CHECKED BY: (Initials) WH H 75

Phone Result:	☐ Yes	☐ No	**Add'l Phone #:**
Fax Result:	☐ Yes	☐ No	**Add'l Fax #:**

REMARKS:
dneel2@concho.com
alieb@concho.com
rgrubbs@concho.com
rhaskell@concho.com

FORM-006 R 2.0