[Sheldon L. Hitchcock]
[HSE Coordinator]

March 22, 2019

Bradford Billings
Oil Conservation Division
1220 S. St Francis Dr. #3
Santa Fe, NM 87505

Crystal Weaver
Bureau of Land Management, CFO
620 E. Green Street
Carlsbad, NM 88220

Re: Closure Letter
Barn Owl Federal #002H
API #: 30-015-42472
RP#: 2RP-4128
Unit Letter B, Section 19, Township 26S, Range 27E
Eddy County, NM

Mr. Billings/Ms. Weaver,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Barn Owl Federal #002H. This release occurred on February 23, 2017. 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 the Bureau of Land Management (BLM). A copy of the approved work plan is attached in Appendix IV.

BACKGROUND

The Barn Owl Federal #002H release is located in Unit Letter B, Section 19, Township 26 South, and Range 27 East in Eddy County, New Mexico. More specifically the latitude and longitude for this release are 32.0336952 North and -104.2253418 West.

On February 23, 2017, a stuffing box leak resulted in the release of approximately five (5) barrels (bbls) of produced water and one-half (0.5) bbls of oil. A vacuum truck was utilized to recover free standing fluids.

Remediation activities were conducted in accordance with the approved work plan. Confirmation soil samples were not required by NMOCD or BLM. A site diagram of the excavated area is presented in Appendix I.

REMEDIAL ACTIONS

- The impacted area was excavated to a depth of five (5) feet BGS.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- The excavation was backfill with clean “like” material and contoured to match the surrounding terrain.

March 22, 2019

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the Bureau of Land Management grant closure approval for the Barn Owl Federal #002H incident that occurred on February 23, 2017.

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

Sincerely,

Sheldon Hitchcock

Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

Enclosed:

Appendix I: Site Diagram
Appendix II: Initial C-141 (Copy)
Appendix III: Final C-141
Appendix IV: Appendix V: Approved Work Plan (Copy)

APPENDIX I


PASTURE
SPILL AREA
56'x20'
BH-1
T-1A
T-1
PJ
4' - 5' DEEP
PAD
LEGEND
BOREHOLE SAMPLE LOCATIONS
TRENCH SAMPLE LOCATIONS
PROPOSED EXCAVATION AREA
N
SCALE: 1 IN = 70 FEET
Feet 0 35 70
CONCHO
Figure 4
Barn Owl Federal #002H
(32.03370, -104.22520)
Proposed Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 212C-MD-00958.26
Date : 02/23/2018
File : H:\GIS\212C-MD-00958.26

APPENDIX II

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 24 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

nAB1705938685

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company:	COG Operating LLC 229137	Contact:	Robert McNeill
Address:	600 West Illinois Avenue, Midland TX 79701	Telephone No.	432-683-7443
Facility Name:	Barn Owl Federal #002H	Facility Type:	Wellhead

Surface Owner: Federal	Mineral Owner:	API No. 30-015-42472

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	19	26S	27E	520	North	1450	East	Eddy

Latitude 32.0336952 **Longitude** -104.2253418

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 0.5 bbls Oil & 5 bbls PW	Volume Recovered: 0 bbls Oil & 4.5 bbls PW
Source of Release: Wellhead	Date and Hour of Occurrence: February 23, 2017 9:00 am	Date and Hour of Discovery: February 23, 2017 9:00 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.*

Describe Cause of Problem and Remedial Action Taken.*

There was a packing blowout from the stuffing box. The pumping unit was shut down and the packing was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release occurred on the pad. 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	Approved by Environmental Specialist: Crystal Weaver	
Title:	Senior HSE Coordinator	Approval Date: 2/28/17	Expiration Date: N/A
E-mail Address:	rhaskell@concho.com	Conditions of Approval: COAs attached	Attached ☒
Date: February 24, 2017	Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

2RP-4128

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release		

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Initial Response

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

☐ The source of the release has been stopped.

☐ The impacted area has been secured to protect human health and the environment.

☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☐ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature: Sheldon Hitson Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature: Sheldon Hitson _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: Ashley Maxwell Date: _____

Printed Name: _____ Title: _____

APPENDIX IV

SITE INFORMATION

Report Type: Work Plan 2RP-4128

General Site Information:						
Site:	**Barn Owl Federal #2H**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit B**	**Sec. 19**	**T 26S**	**R 27E**		
Lease Number:	**API No. 30-015-42472**					
County:	**Eddy County**					
GPS:	**32.0336952º N**			**104.2253418º W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From intersection of HWY 285 & Whites City Rd, travel west on Whites City Rd for approx 7.80 mi, turn south onto lease rd for 1.90 mi, turn west onto lease rd for 1.25 mi, turn south onto lease rd for 400' to location.					

Release Data:	
Date Released:	2/23/2017
Type Release:	Oil & Produced Water
Source of Contamination:	Wellhead
Fluid Released:	0.5 bbl oil & 5 bbl water
Fluids Recovered:	0 bbl oil & 4.5 bbl 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) 687-8110
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*
50-99 ft	10	
>100 ft.	0	
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:	***20***	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	100

TETRA TECH

June 18, 2018

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., Barn Owl Federal #2H, Unit B, Section 19, Township 26 South, Range 27 East, Eddy County, New Mexico. 2RP-4128.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to evaluate and assess a release that occurred at Barn Owl Federal #2H, Unit B, Section 19, Township 26 South, Range 27 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.0336952º, W 104.2253418º. 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 February 23, 2017, and released approximately 0.5 barrels of oil and 5 barrels of produced water due to a packing blowout at the stuffing box. A vacuum truck was used to remove all freestanding fluids and recovered approximately 4.5 bbls of produced water and none of the oil. The release occurred on the pad area and measured approximately 20' x 55'. The initial C-141 Form is included in Appendix A.

Groundwater

No wells are listed within Section 19 in the New Mexico Office of the State Engineers database, USGS National Water Information System, or the Geology and Groundwater Resources of Eddy County, New Mexico (Report 3). The nearest well listed is in Section 07, with a reported depth to water of 18 feet below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is less than 50' 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.tetratech.com

TETRA TECH

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 100 mg/kg.

Soil Assessment and Analytical Results

Initial Trench Sampling

On March 21, 2017, COG personnel were onsite to evaluate and sample the release area. One sample trench (T-1) was installed in the release area to a total depth of 7.0' below surface. For horizontal extents, four (4) sample trenches (North, South, East, and West) were installed outside of the release footprint to total depths between 3.0' and 4.0' 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 locations are shown on Figure 3.

Referring to Table 1, none of the samples analyzed for TPH, benzene, or total BTEX exceeded the RRALs. However, the area of trench (T-1) showed elevated chloride concentrations, with a chloride high of 10,500 mg/kg at 1.0' below surface. The chloride concentrations declined to 703 mg/kg at 6.0' before spiking to 2,520 mg/kg at 7.0' below surface and not vertically defined. The area of trench (South) showed a chloride high of 1,070 mg/kg at surface, which decline with depth to 47.7 mg/kg at 1.0' below surface. The remaining areas of trenches (North, East, and West) showed minimal chloride concentrations in the shallow soils.

Additional Trench Sampling

Based on the laboratory data, ASSI personnel were onsite on October 12, 2017, to confirm and attempt to define the chloride concentrations in the areas of trenches (T-1 and South). ASSI personnel installed one sample trench (T-1A) in the area of T-1 to a total depth of 6.0' below surface. A confirmation surface sample (South 1A) was also collected in trench (South). Additionally, one background trench (Background) was installed in the adjacent pasture to a total depth of 4.0' below surface to evaluate the native soils. The samples were analyzed for chlorides 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 locations are shown on Figure 3.

Referring to Table 1, the area of trench (T-1A) showed chloride concentrations below the laboratory reporting limits at surface, which then increased with depth to 891 mg/kg at 6.0' below surface. The surface sample collected at (South 1A) showed a chloride concentration of 1.53 mg/kg. The area of trench (Background) showed chloride concentrations ranging from 1.52 mg/kg (3.0') to 33.2 mg/kg (surface).

Borehole Installation

Based on the laboratory data, Tetra Tech personnel were onsite on November 20, 2017, to install one borehole (BH-1) in the area of trench (T-1) to a total depth of 29'-30' below surface in order to vertically define the chloride concentrations. 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 borehole location is shown on Figure 3.

Referring to Table 1, the samples showed shallow impact to the area. The area of borehole (BH-1) showed a chloride high of 9,920 mg/kg at 0-1'and declined with depth to 714 mg/kg at 6.0'-7.0'. The bottom hole sample at 29'-30' showed a chloride concentration of 85.7 mg/kg. Additionally, the sample collected at 9-10' showed TPH, benzene, and total BTEX concentrations below the laboratory reporting limits.

Work Plan

Based on the laboratory results, COG proposes to remove the chloride impacted soils as shown on Figure 4 and highlighted (green) on Table 1. The area of trench (T-1) will be excavated to approximately 4.0' below surface to remove the chloride impacted soils. The excavation will then 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 safely concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

TETRA TECH

Conclusion

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 at (432) 682-4559.

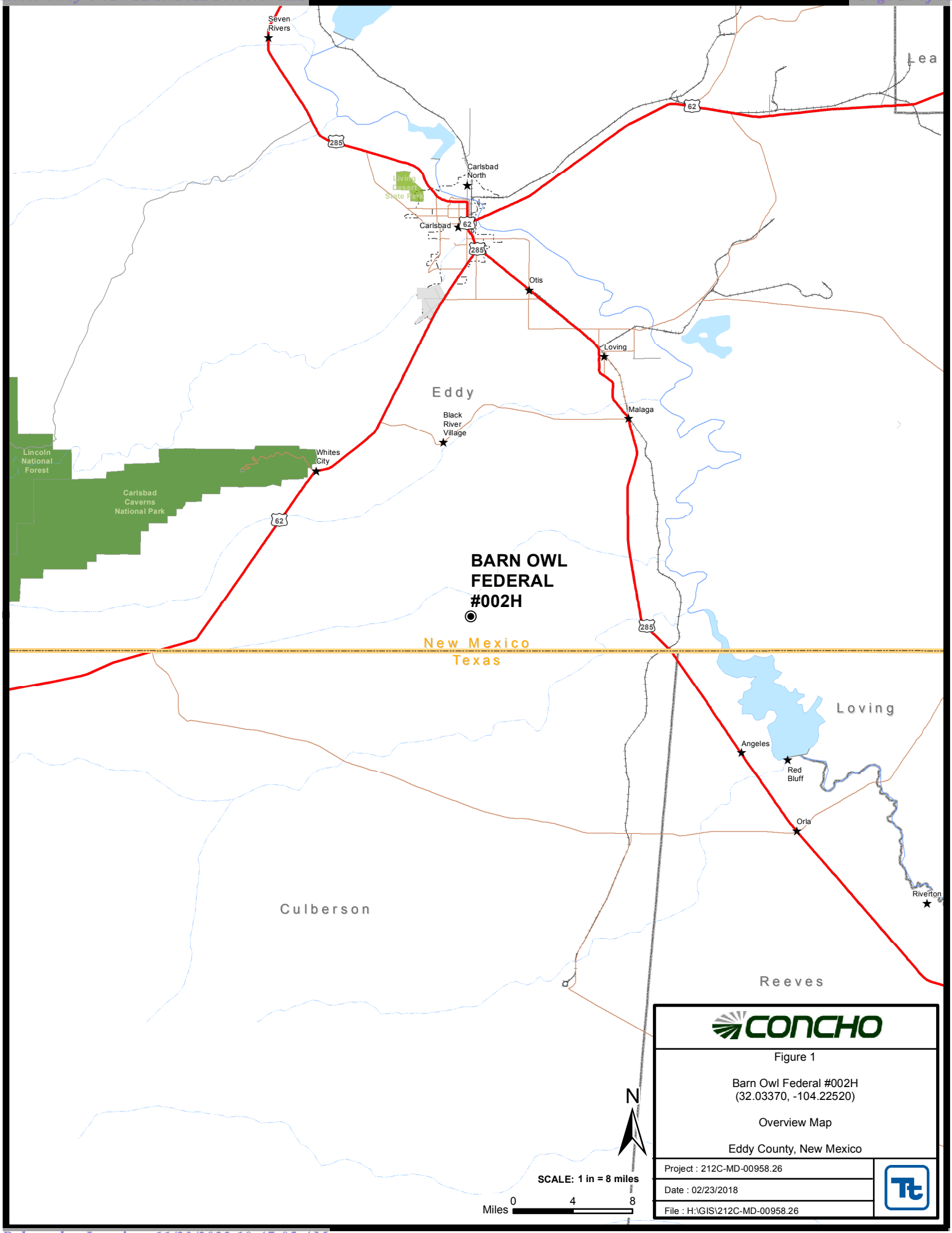
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

Ike Tavarez,
Senior Project Manager, P.G.

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

Figures



CONCHO

Figure 1

Barn Owl Federal #002H
(32.03370, -104.22520)

Overview Map

Eddy County, New Mexico

Project : 212C-MD-00958.26	
Date : 02/23/2018	
File : H:\GIS\212C-MD-00958.26	

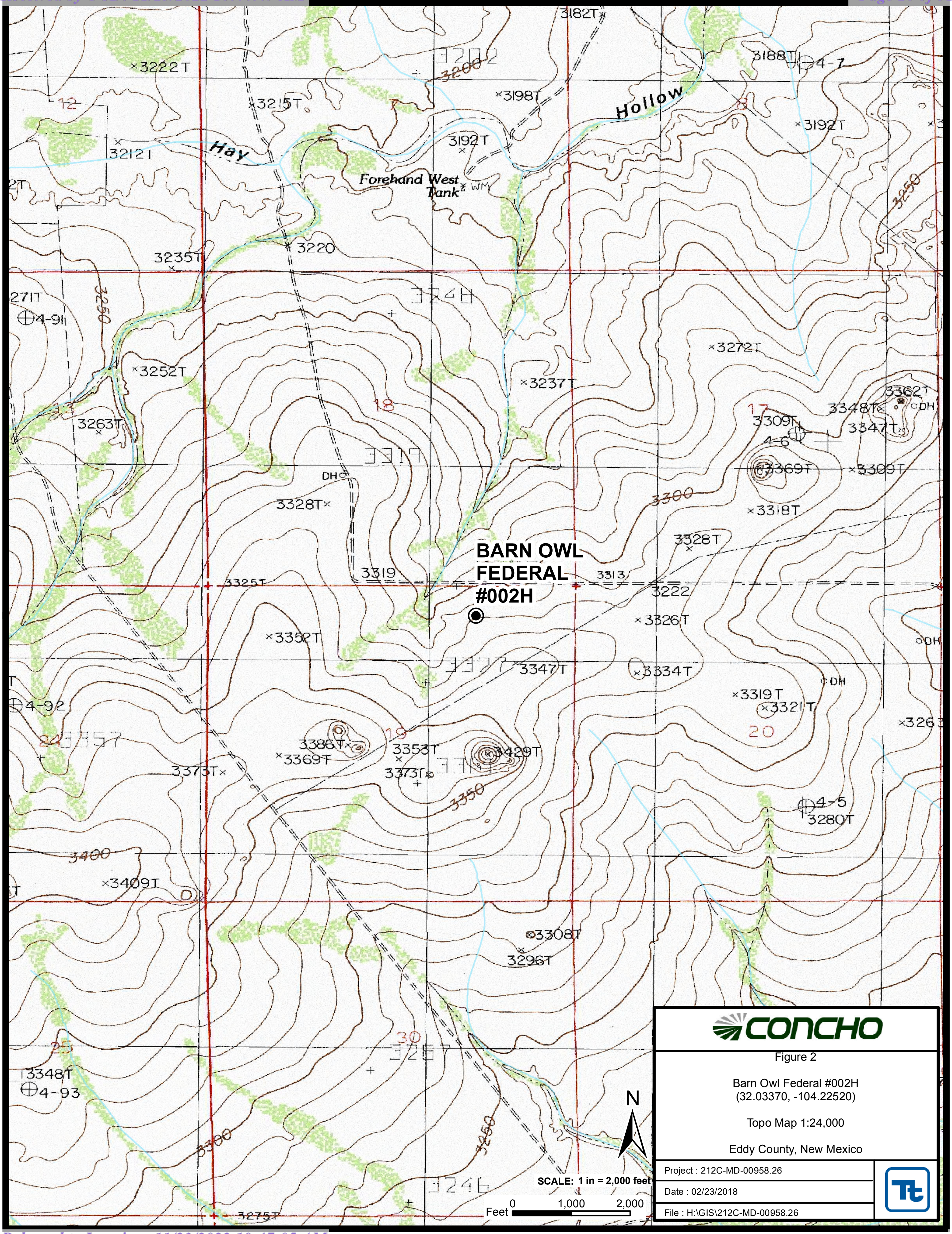


Figure 2

Barn Owl Federal #002H
(32.03370, -104.22520)

Topo Map 1:24,000

Eddy County, New Mexico

Project : 212C-MD-00958.26

Date : 02/23/2018

File : H:\GIS\212C-MD-00958.26

CONCHO

Figure 3

Barn Owl Federal #002H
(32.03370, -104.22520)

Spill Assessment Map

Eddy County, New Mexico

Project : 212C-MD-00958.26

Date : 02/23/2018

File : H:\GIS\212C-MD-00958.26

LEGEND

- BOREHOLE SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- PROPOSED EXCAVATION AREA

CONCHO

Figure 4

Barn Owl Federal #002H
(32.03370, -104.22520)

Proposed Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 212C-MD-00958.26	
Date : 02/23/2018	
File : H:\GIS\212C-MD-00958.26	

Tables

Table 1
COG Operating LLC.
Barn Owl Federal #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	C6-C10	C10-C28	C28-C35	Total						
T-1	3/21/2017	Surface	X		<15.0	<15.0	-	<15.0	<0.00152	<0.00203	<0.00203	<0.00203	<0.00152	**9,950**
	"	1	X		<15.0	<15.0	-	<15.0	<0.00149	<0.00199	<0.00199	<0.00199	<0.00152	**10,500**
	"	2	X		-	-	-	-	-	-	-	-	-	**9,760**
	"	3	X		-	-	-	-	-	-	-	-	-	**5,620**
	"	4	X		-	-	-	-	-	-	-	-	-	**2,050**
	"	6	X		-	-	-	-	-	-	-	-	-	703
	"	7	X		-	-	-	-	-	-	-	-	-	**2,520**
T-1A	10/12/2017	Surface	X		-	-	-	-	-	-	-	-	-	<49.4
	"	1	X		-	-	-	-	-	-	-	-	-	<49.2
	"	2	X		-	-	-	-	-	-	-	-	-	10.3
	"	3	X		-	-	-	-	-	-	-	-	-	55.9
	"	4	X		-	-	-	-	-	-	-	-	-	298
	"	5	X		-	-	-	-	-	-	-	-	-	**895**
	"	6	X		-	-	-	-	-	-	-	-	-	**891**
BH-1	11/20/2017	0-1	X		-	-	-	-	-	-	-	-	-	**9,920**
	"	2-3	X		-	-	-	-	-	-	-	-	-	**8,400**
	"	4-5	X		-	-	-	-	-	-	-	-	-	**1,820**
	"	6-7	X		-	-	-	-	-	-	-	-	-	714
	"	9-10	X		<25.0	<25.0	<25.0	<25.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<49.1
	"	14-15	X		-	-	-	-	-	-	-	-	-	105
	"	19-20	X		-	-	-	-	-	-	-	-	-	105
	"	24-25	X		-	-	-	-	-	-	-	-	-	104
	"	29-30	X		-	-	-	-	-	-	-	-	-	85.7

Table 1
COG Operating LLC.
Barn Owl Federal #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	C6-C10	C10-C28	C28-C35	Total						
North	3/21/2017	Surface	X		<15.0	43.8	-	43.8	<0.00265	<0.00353	<0.00353	<0.00353	<0.00265	40.2
	"	1	X		<14.9	<14.9	-	<14.9	<0.00150	<0.00200	<0.00200	<0.00200	<0.00265	13.5
	"	2	X		-	-	-	-	-	-	-	-	-	63.0
	"	3	X		-	-	-	-	-	-	-	-	-	173
South	3/21/2017	Surface	X		<14.9	57.9	-	57.9	<0.00283	<0.00377	<0.00377	<0.00377	<0.00283	**1,070**
	"	1	X		<15.0	<15.0	-	<15.0	<0.00150	<0.00200	<0.00200	<0.00200	<0.00150	47.7
	"	2	X		-	-	-	-	-	-	-	-	-	<10.0
	"	3	X		-	-	-	-	-	-	-	-	-	27.1
South 1A	10/12/2017	Surface	X		-	-	-	-	-	-	-	-	-	1.53
East	3/21/2017	Surface	X		<15.0	<15.0	-	<15.0	<0.00151	<0.00202	<0.00202	<0.00202	<0.00151	179
	"	1	X		<15.0	<15.0	-	<15.0	<0.00151	<0.00202	<0.00202	<0.00202	<0.00151	204
	"	2	X		-	-	-	-	-	-	-	-	-	156
	"	3	X		-	-	-	-	-	-	-	-	-	168
West	3/21/2017	Surface	X		<15.0	<15.0	-	<15.0	<0.00152	<0.00202	<0.00202	<0.00202	<0.00152	161
	"	1	X		<15.0	<15.0	-	<15.0	<0.00149	<0.00199	<0.00199	<0.00199	<0.00149	31.8
	"	2	X		-	-	-	-	-	-	-	-	-	17.9
	"	3	X		-	-	-	-	-	-	-	-	-	15.4
Background	10/12/2017	Surface	X		-	-	-	-	-	-	-	-	-	33.2
	"	1	X		-	-	-	-	-	-	-	-	-	3.20
	"	2	X		-	-	-	-	-	-	-	-	-	1.90
	"	3	X		-	-	-	-	-	-	-	-	-	1.52
	"	4	X		-	-	-	-	-	-	-	-	-	5.52

Photos

COG Operating LLC
Barn Owl Federal #2H
Eddy County, New Mexico

TETRA TECH

View North – Area of BH-1

View West – Area of BH-1

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

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

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: Barn Owl Federal #002H		Facility Type:	Wellhead

Surface Owner:	Federal	Mineral Owner:		API No.	30-015-42472

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	19	26S	27E	520	North	1450	East	Eddy

Latitude 32.0336952 **Longitude** -104.2253418

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 0.5 bbls Oil & 5 bbls PW	Volume Recovered: 0 bbls Oil & 4.5 bbls PW
Source of Release: Wellhead	Date and Hour of Occurrence: February 23, 2017 9:00 am	Date and Hour of Discovery: February 23, 2017 9:00 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.*

Describe Cause of Problem and Remedial Action Taken.*

There was a packing blowout from the stuffing box. The pumping unit was shut down and the packing was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release occurred on the pad. 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	Approved by Environmental Specialist:	
Title:	Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address:	rhaskell@concho.com	Conditions of Approval:	Attached ☐
Date: February 24, 2017	Phone: 432-683-7443		

Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Barn Owl Federal #2H
Eddy County, New Mexico

25 South 26 East

6	5	4	3 45	2	1
7 60	8	9 45	10	11	12
18	17	16	15	14	13
19	20	21	22 118	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South 27 East

6	5	4	3	2	1
7	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

26 South 26 East

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

26 South 27 East

6	5 12	4	3	2	1
7 18	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	14 120	13 56
19	20	21	22 120	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)

90 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	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 02218		CUB	ED	4	1	4	07	26S	27E	573039	3546725*	35		
C 02219		CUB	ED	4	4	4	05	26S	27E	575033	3547948*	35		
C 02474		CUB	ED		4	3	02	26S	27E	578964	3548029*	100		
C 02475		CUB	ED		2	4	13	26S	27E	581450	3545252*	100		
C 02476		CUB	ED		4	1	24	26S	27E	580653	3544032*	150		
C 02930		C	ED	2	3	4	22	26S	27E	577938	3543284*	100	50	50

Average Depth to Water: **50 feet**

Minimum Depth: **50 feet**

Maximum Depth: **50 feet**

Record Count: 6

PLSS Search:

Township: 26S **Range:** 27E

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

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

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twp	Rng	X	Y	Depth Well	Depth Water	Water Column
C 01351			ED	4	2	4	19	26S	26E	563772	3543411*	25		
C 01351 X			ED	4	4	1	20	26S	26E	564581	3543822*	25		
C 01351 X-2			ED	3	1	3	20	26S	26E	563978	3543413*	25		
C 01887		C	ED	4	4	2	15	26S	26E	568614	3545497*	53	31	22
C 02407		C	ED	1	4	1	08	26S	26E	564347	3547268*	160	22	138
C 02438			ED	4	2	3	12	26S	26E	571015	3546705*	30		
C 02439			ED	2	4	2	15	26S	26E	568614	3545697*	30		
C 02791			ED		4	4	17	26S	26E	565288	3544739*	100		
C 03810 POD1		C	ED	3	1	3	20	26S	26E	563896	3543406	100	15	85
C 03811 POD1		C	ED	4	1	4	19	26S	26E	563746	3543436	46	15	31
C 03812 POD1		C	ED	4	4	1	20	26S	26E	564641	3543737	96	15	81
C 04041 POD1		C	ED	2	1	3	20	26S	26E	564281	3543559	100	60	40
C 04046 POD1		CUB	ED	1	2	3	20	26S	26E	564437	3543647	140	100	40
C 04048 POD1		CUB	ED	2	3	2	20	26S	26E	565061	3543969	140	80	60
C 04091 POD1		CUB	ED	2	3	2	21	26S	26E	566528	3543940	140	85	55

Average Depth to Water: **47 feet**
Minimum Depth: **15 feet**
Maximum Depth: **100 feet**

Record Count: 15

PLSS Search:

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

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

Appendix C

Analytical Report 569372

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

Barn Own Federal #2H

212C-MD-00958 Task#26

04-DEC-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), 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 (T104704400-17-13)
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)

04-DEC-17

Project Manager: **Ike Tavarez**
Tetra Tech- Midland
4000 N. Big Spring Suite 401
Midland, TX 79705

Reference: XENCO Report No(s): **569372**
Barn Own Federal #2H
Project Address: Eddy County,New Mexico

Ike Tavarez:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 569372. 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. 569372 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,

Mike Kimmel
Client Services Manager

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Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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

Sample Cross Reference 569372

Tetra Tech- Midland, Midland, TX

Barn Own Federal #2H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH #1 (0-1')	S	11-21-17 00:00		569372-001
BH #1 (2-3')	S	11-21-17 00:00		569372-002
BH #1 (4-5')	S	11-21-17 00:00		569372-003
BH #1 (6-7')	S	11-21-17 00:00		569372-004
BH #1 (9-10')	S	11-21-17 00:00		569372-005
BH #1 (14-15')	S	11-21-17 00:00		569372-006
BH #1 (19-20')	S	11-21-17 00:00		569372-007
BH #1 (24-25')	S	11-21-17 00:00		569372-008
BH #1 (29-30')	S	11-21-17 00:00		569372-009

Version: 1.%

CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Barn Own Federal #2H

Project ID: *212C-MD-00958 Task#26*
Work Order Number(s): *569372*

Report Date: *04-DEC-17*
Date Received: *11/27/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3034532 BTEX by EPA 8021B

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

Certificate of Analysis Summary 569372

Tetra Tech- Midland, Midland, TX

Project Name: Barn Own Federal #2H

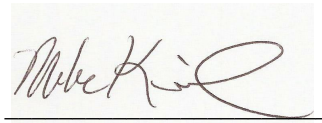
Project Id: 212C-MD-00958 Task#26
Contact: Ike Tavarez
Project Location: Eddy County,New Mexico

Date Received in Lab: Mon Nov-27-17 03:26 pm
Report Date: 04-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	569372-001		569372-002		569372-003		569372-004		569372-005		569372-006	
	Field Id:	BH #1 (0-1')		BH #1 (2-3')		BH #1 (4-5')		BH #1 (6-7')		BH #1 (9-10')		BH #1 (14-15')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Nov-21-17 00:00		Nov-21-17 00:00		Nov-21-17 00:00		Nov-21-17 00:00		Nov-21-17 00:00		Nov-21-17 00:00	
BTEX by EPA 8021B	***Extracted:***									Nov-29-17 16:00			
	Analyzed:									Nov-30-17 07:43			
	Units/RL:									mg/kg	RL		
Benzene										<0.00199	0.00199		
Toluene										<0.00199	0.00199		
Ethylbenzene										<0.00199	0.00199		
m,p-Xylenes										<0.00398	0.00398		
o-Xylene										<0.00199	0.00199		
Total Xylenes										<0.00199	0.00199		
Total BTEX										<0.00199	0.00199		
Inorganic Anions by EPA 300/300.1	***Extracted:***	Dec-04-17 09:00		Dec-04-17 09:00		Dec-04-17 09:00		Dec-04-17 09:00		Dec-04-17 09:00		Dec-04-17 09:00	
	Analyzed:	Dec-04-17 10:21		Dec-04-17 10:27		Dec-04-17 10:33		Dec-04-17 10:50		Dec-04-17 10:56		Dec-04-17 11:02	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		9920	100	8400	98.0	1820	49.2	714	49.2	<49.1	49.1	105	49.9
TPH by Texas1005	***Extracted:***									Nov-29-17 16:00			
	Analyzed:									Nov-29-17 20:12			
	Units/RL:									mg/kg	RL		
C6-C12 Range Hydrocarbons										<25.0	25.0		
C12-C28 Range Hydrocarbons										<25.0	25.0		
C28-C35 Range Hydrocarbons										<25.0	25.0		
Total TPH										<25.0	25.0		

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

Version: 1.%



Mike Kimmel
Client Services Manager

Certificate of Analysis Summary 569372

Tetra Tech- Midland, Midland, TX

Project Name: Barn Own Federal #2H

Project Id: 212C-MD-00958 Task#26
Contact: Ike Tavarez
Project Location: Eddy County,New Mexico

Date Received in Lab: Mon Nov-27-17 03:26 pm
Report Date: 04-DEC-17
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	569372-007		569372-008		569372-009					
	Field Id:	BH #1 (19-20')		BH #1 (24-25')		BH #1 (29-30')					
	Depth:										
	Matrix:	SOIL		SOIL		SOIL					
	Sampled:	Nov-21-17 00:00		Nov-21-17 00:00		Nov-21-17 00:00					
Inorganic Anions by EPA 300/300.1	***Extracted:***	Dec-04-17 09:00		Dec-04-17 09:00		Dec-04-17 09:00					
	Analyzed:	Dec-04-17 11:08		Dec-04-17 11:14		Dec-04-17 11:38					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		105	49.8	104	49.3	85.7	49.1				

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Version: 1.%

Mike Kimmel
Client Services Manager

Final 1.000

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

+ 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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9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

Form 2 - Surrogate Recoveries

Project Name: Barn Own Federal #2H

Work Orders : 569372,

Project ID: 212C-MD-00958 Task#26

Lab Batch #: 3034557 **Sample:** 569372-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/17 20:12

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	41.4	50.0	83	70-130	
1-Chlorooctane	89.9	99.9	90	70-130	

Lab Batch #: 3034532 **Sample:** 569372-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/30/17 07:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

Lab Batch #: 3034557 **Sample:** 7635168-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/29/17 12:08

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	43.3	50.0	87	70-130	
1-Chlorooctane	89.5	100	90	70-130	

Lab Batch #: 3034532 **Sample:** 7635171-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/30/17 01:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0255	0.0300	85	80-120	

Lab Batch #: 3034557 **Sample:** 7635168-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/29/17 13:40

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.1	50.0	96	70-130	
1-Chlorooctane	107	100	107	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Barn Own Federal #2H

Work Orders : 569372,

Project ID: 212C-MD-00958 Task#26

Lab Batch #: 3034532 **Sample:** 7635171-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/29/17 23:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0274	0.0300	91	80-120	

Lab Batch #: 3034557 **Sample:** 7635168-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/29/17 14:02

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.6	50.0	101	70-130	
1-Chlorooctane	105	100	105	70-130	

Lab Batch #: 3034532 **Sample:** 7635171-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/30/17 00:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0313	0.0300	104	80-120	
4-Bromofluorobenzene	0.0286	0.0300	95	80-120	

Lab Batch #: 3034557 **Sample:** 569570-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/17 14:45

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	42.2	50.0	84	70-130	
1-Chlorooctane	89.6	100	90	70-130	

Lab Batch #: 3034532 **Sample:** 569650-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/30/17 00:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Barn Own Federal #2H

Work Orders : 569372,

Project ID: 212C-MD-00958 Task#26

Lab Batch #: 3034557 **Sample:** 569570-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/29/17 15:07

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	42.7	49.9	86	70-130	
1-Chlorooctane	88.9	99.8	89	70-130	

Lab Batch #: 3034532 **Sample:** 569650-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/30/17 00:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

BS / BSD Recoveries

Project Name: Barn Own Federal #2H

Work Order #: 569372 **Project ID:** 212C-MD-00958 Task#26

Analyst: ALJ **Date Prepared:** 11/29/2017 **Date Analyzed:** 11/29/2017

Lab Batch ID: 3034532 **Sample:** 7635171-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.0998	0.0971	97	0.100	0.0931	93	4	70-130	35	
Toluene	<0.00200	0.0998	0.0917	92	0.100	0.0871	87	5	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.0902	90	0.100	0.0867	87	4	71-129	35	
m,p-Xylenes	<0.00399	0.200	0.171	86	0.201	0.164	82	4	70-135	35	
o-Xylene	<0.00200	0.0998	0.0862	86	0.100	0.0832	83	4	71-133	35	

Analyst: OJS **Date Prepared:** 12/04/2017 **Date Analyzed:** 12/04/2017

Lab Batch ID: 3034908 **Sample:** 7635380-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	226	90	250	227	91	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

BS / BSD Recoveries

Project Name: Barn Own Federal #2H

Work Order #: 569372 **Project ID:** 212C-MD-00958 Task#26

Analyst: ARM **Date Prepared:** 11/29/2017 **Date Analyzed:** 11/29/2017

Lab Batch ID: 3034557 **Sample:** 7635168-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	1000	952	95	1000	996	100	5	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	995	100	1000	990	99	1	75-125	25	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: Barn Own Federal #2H

Work Order # : 569372 **Project ID:** 212C-MD-00958 Task#26

Lab Batch ID: 3034532 **QC- Sample ID:** 569650-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/30/2017 **Date Prepared:** 11/29/2017 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00199	0.0994	0.0709	71	0.0998	0.0824	83	15	70-130	35	
Toluene	<0.00199	0.0994	0.0658	66	0.0998	0.0769	77	16	70-130	35	X
Ethylbenzene	<0.00199	0.0994	0.0666	67	0.0998	0.0759	76	13	71-129	35	X
m,p-Xylenes	<0.00398	0.199	0.128	64	0.200	0.144	72	12	70-135	35	X
o-Xylene	<0.00199	0.0994	0.0668	67	0.0998	0.0734	74	9	71-133	35	X

Lab Batch ID: 3034908 **QC- Sample ID:** 569343-010 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/04/2017 **Date Prepared:** 12/04/2017 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	5.00	246	262	104	246	260	104	1	90-110	20	

Lab Batch ID: 3034908 **QC- Sample ID:** 569374-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/04/2017 **Date Prepared:** 12/04/2017 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	969	249	1120	61	249	1150	73	3	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: Barn Own Federal #2H

Work Order # : 569372 **Project ID:** 212C-MD-00958 Task#26

Lab Batch ID: 3034557 **QC- Sample ID:** 569570-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/29/2017 **Date Prepared:** 11/29/2017 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	535	1000	1450	92	998	1440	91	1	75-125	25	
C12-C28 Range Hydrocarbons	3580	1000	4460	88	998	4430	85	1	75-125	25	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland,Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Sw9372

Client Name: COG	**Site Manager:** Ike Tavarez
Project Name: Barn Own Federal #2H	
Project Location: (county, state) Eddy County, New Mexico	**Project #:** 212C-MD-00958 Task#26
Invoice to: COG	
Receiving Laboratory: Xenco Midland Tx	**Sampler Signature:** Mike Carmona
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2017 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
	BH #1 (0-1')	11/21/2017			X				X			1	N															X							
	BH #1 (2-3')	11/21/2017			X				X			1	N															X							
	BH #1 (4-5')	11/21/2017			X				X			1	N															X							
	BH #1 (6-7')	11/21/2017			X				X			1	N															X							
	BH #1 (9-10')	11/21/2017			X				X			1	N															X							
	BH #1 (14-15')	11/21/2017			X				X			1	N	X		X												X							
	BH #1 (19-20')	11/21/2017			X				X			1	N															X							
	BH #1 (24-25')	11/21/2017			X				X			1	N															X							
	BH #1 (29-30')	11/21/2017			X				X			1	N															X							
																												X							

Final 1.000

Relinquished by: mike Carmona	Date: 11/27/17	Time: 1525
Received by: Shawne Smith	Date: 11.27.17	Time: 15:26
Relinquished by:	Date:	Time:
Received by:	Date:	Time:
Relinquished by:	Date:	Time:
Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

ORIGIN Temp: 4.0 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.8

REMARKS:

STANDARD

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 11/27/2017 03:26:00 PM

Work Order #: 569372

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.8
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**No**
#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)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Shawnee Smith Date: 11/27/2017

Shawnee Smith

Checklist reviewed by: Mike Kimmel Date: 12/03/2017

Mike Kimmel

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 161230

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 161230
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	None	11/23/2022