

SITE INFORMATION

Report Type: Addendum

General Site Information:

Site & Lease No:	Copperhead 31 Federal Com #001H				
Company:	COG Operating LLC				
Section, Township and Range	Unit H	Sec. 31	T 26S	R 29E	
Lease Number:	API No. 30-015-38532				
County:	Eddy County				
GPS:	32.0014305			-104.0168457	
Surface Owner:	BLM				
Directions:	From the intersection of Hwy 285 and Catfish Rd. head east on Catfish Rd. for 0.85 miles, turn left (north) and go 400 feet and arrive at location.				

Release Data:

RP Number	2RP- 4763	
Date Released:	5/20/2018	
Type Release:	Produced Water	
Source of Contamination:	Flowline Rupture	
Fluid Released:	249 bbl	
Fluids Recovered:	9 bbls	

Official Communication:

Name:	Ike Tavarez		Clair Gonzales
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	itavarez@concho.com		Clair.Gonzales@tetrattech.com

Site Characterization

Depth to Groundwater:	50' +
Karst Potential:	Medium

Recommended Remedial Action Levels (RRALs)

Benzene	Total BTEX	TPH (GRO+DRO+MRO)	Chlorides
10 mg/kg	50 mg/kg	100 mg/kg	600 mg/kg

XNFJ4-190819-C-1410



June 18, 2019

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

Re: Work Plan for the COG Operating, LLC, Copperhead 31 Federal Com #001H, Unit H, Section 31, Township 26 South, Range 29 East, Eddy County, New Mexico. 2RP-4763

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to evaluate a release that occurred at the Copperhead 31 Federal #001H, Unit H, Section 31, Township 26 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.00143°, -104.01684°. 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 May 20, 2018, and released approximately 240 barrels of produced water due to a flowline rupture. The release impacted an overall area measuring approximately 220' x 110'. The C-141 Form is included in Appendix A.

BBC International (BBC) previously submitted a workplan which was denied by the NMOCD. The BBC work plan is shown in Appendix C.

Site Characterization

A site characterization was performed for the site and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances.

However, the site is located in a medium karst potential area. No water wells were listed within Section 31 on the New Mexico Office of the State Engineer's (NMOSE) database, the Geology and Groundwater Resources of Eddy County (Report 3), or the USGS National Water Information database. The nearest well is listed in Section 26 on the USGS database, approximately 3.35 miles northeast of the site, and has a reported depth to groundwater of 54.30' below surface.

Tetra Tech personnel were onsite on February 14-15 2019, to re-assess overlapping releases (2RP-4796 and 2RP-5034) that occurred adjacent to the site. A total of four (4) boreholes (BH-1, BH-2, BH-3, and BH-4) were installed in the area to total depths ranging from 19'-20- to 49'-50' below surface in order to vertically define the chloride concentrations. Also, the boreholes (BH-1 through BH-4) showed no moisture or groundwater at any of the borehole locations with the

[Tetra Tech](#)

901 West Wall, Suite 100, Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



deepest depth at (BH-1) 49'-50' below surface. The groundwater data and borehole logs are shown in Appendix B.

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, updated August 14, 2018. 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 site characterization the proposed RRAL for TPH is 100 mg/kg (GRO+DRO+MRO). Additionally, the proposed RRAL for chlorides is 600 mg/kg.

Work Plan

Based on the laboratory results, as presented by BBC, and the boreholes installed by Tetra Tech at the adjacent site which indicate depth to ground water is greater than 50', COG proposes to remove the chloride impacted soils as shown on BBC's Figure 1 in Appendix C. Due to access issues and safety concerns, the proposed excavation will be performed to remove the impacted soil to the maximum extent practicable. The areas of sample points (SP-1, SP-2, SP-3, SP-4, SP-5, SP-6, SP-7, SP-8, and SP-9) will be excavated to approximately 4.0' below surface.

Variance

Per rule 19.15.29.14, COG requests a variance to install a 20-mil liner at 4.0' below surface in the areas of sample points (SP-1, SP-2, SP-3, SP-4, SP-5, SP-6, SP-7, SP-8, and SP-9), to prevent vertical migration of the deeper chloride concentrations detected. Prior to the liner installation, composite sidewall samples will be collected every 600 square feet, to be representative of the release area, for documentation purposes.

All the excavated material will be transported offsite for proper disposal. COG estimates approximately 1,265 cubic yards will be excavated and will be implemented within ninety (90) days of the work plan being approved.

Sampling Plan

Five-point composite sidewall confirmation samples will be collected every 600 square feet in order to ensure proper removal of the impacted areas. The proposed excavation depths may not be reached due to wall cave-ins and safety concerns for onsite personnel. Also, impacted soil around oil and gas equipment, structures or lines may not be viable or practicable to be removed due to safety concerns for on-site personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.



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

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

Clair Gonzales, PG
Project Manager

A handwritten signature in blue ink that reads 'Johnathon Kell'.

Johnathon Kell,
Geologist

cc: Ike Tavaréz - COG
Dakota Neel - COG
Rebecca Haskell - COG
Sheldon Hitchcock - COG
DeAnn Grant - COG

Figures



Cavern City Air Terminal

180

Black River Village Rd

Malaga

285

Eddy

COPPERHEAD 31 FEDERAL COM 001H

2RP-4796, 2RP-5034

NEW MEXICO
TEXAS

285

Loving

285

652

Culberson

652

FM 652 W

Orla

FM 652 E

0 20,833 41,666 Feet
1 inch = 20,833 feet

Reese

LEGEND

● SITE LOCATION



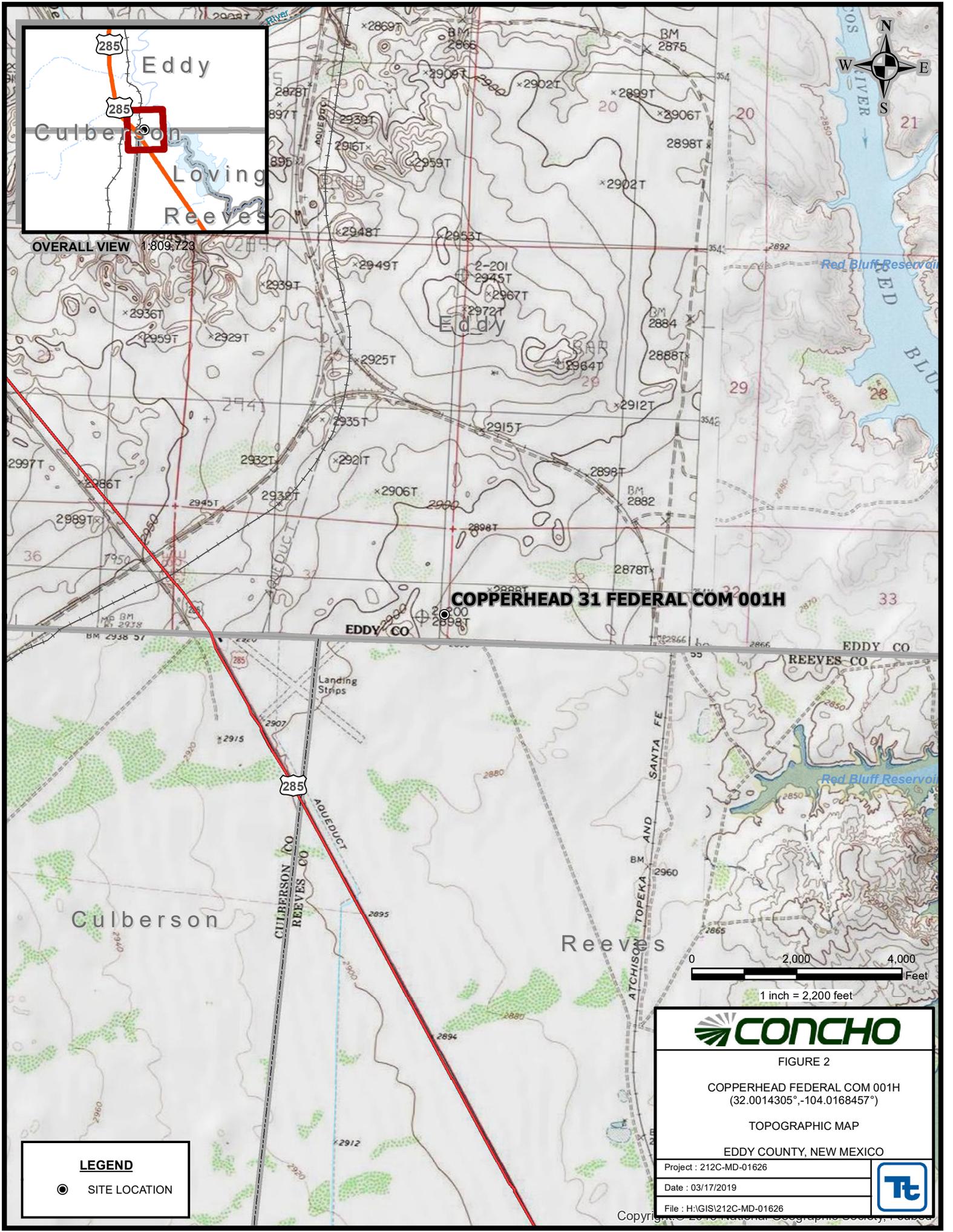
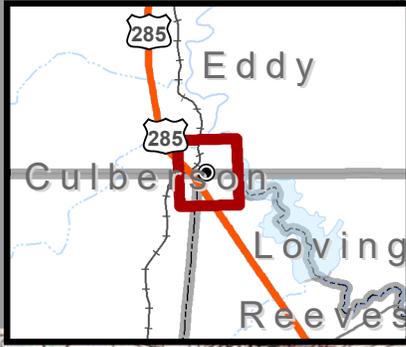
FIGURE 1

COPPERHEAD FEDERAL COM 001H
(32.0014305°,-104.0168457°)

OVERVIEW MAP

EDDY COUNTY, NEW MEXICO

Project : 212C-MD-01626	
Date : 03/17/2019	
File : H:\GIS\212C-MD-01626	



COPPERHEAD 31 FEDERAL COM 001H

LEGEND

● SITE LOCATION

CONCHO

FIGURE 2

COPPERHEAD FEDERAL COM 001H
(32.0014305°,-104.0168457°)

TOPOGRAPHIC MAP

EDDY COUNTY, NEW MEXICO

Project : 212C-MD-01626	
Date : 03/17/2019	
File : H:\GIS\212C-MD-01626	

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

MAY 21 2018

Form C-141
Revised April 3, 2017

DISTRICT II ARTESIA O.C.D.
Submit Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

NAB1814258390

OPERATOR

Initial Report Final Report

Name of Company: COG Production, LLC (OGRID 217955)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No.: 432-683-7443
Facility Name: Copperhead 31 Federal Com #001H	Facility Type: Tank Battery
Surface Owner: BLM	Mineral Owner: Federal
API No.: 30-015-38532	

LOCATION OF RELEASE

Unit Letter H	Section 31	Township 26S	Range 29E	Feet from the 480	North/South Line South	Feet from the 480	East/West Line East	County Eddy
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Latitude: 32.0014305 Longitude: -104.0168457 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 240bbbls	Volume Recovered: 9bbbls
Source of Release: Flowline	Date and Hour of Occurrence: 5/20/2018	Date and Hour of Discovery: 5/20/2018 9:15am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher-NMOCD Shelly Tucker-BLM	
By Whom? Sheldon Hitchcock	Date and Hour: 5/20/2018 6:15pm	
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 4-inch poly line ruptured due to a suspected high line pressure. The damaged section of line will be replaced.		
Describe Area Affected and Cleanup Action Taken.* The release impacted the pasture east of the tank battery. Concho will have the area evaluated for any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		

OIL CONSERVATION DIVISION

Signature: <i>Sheldon Hitchcock</i>	Approved by Environmental Specialist <i>Mike Bratcher</i>	
Printed Name: Sheldon L. Hitchcock	Approval Date: <i>5/22/18</i>	Expiration Date: <i>NIA</i>
Title: HSE Coordinator	Conditions of Approval: <i>See attached</i>	
E-mail Address: slhitchcock@concho.com	Attached <input type="checkbox"/> <i>2018-4763</i>	
Date: 5/21/2018	Phone: 575-746-2010	

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 5/21/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP 47123 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 6/21/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- **Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water.** If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

Bratcher, Mike, EMNRD

From: Sheldon Hitchcock <SLHitchcock@concho.com>
Sent: Monday, May 21, 2018 10:27 AM
To: Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD; stucker@blm.gov
Cc: Robert McNeill; Rebecca Haskell; Dakota Neel; Christopher Gray; DeAnn Grant
Subject: (C-141 Initial) Copperhead 31 Federal Com #001H (30-015-38532) 5/20/2018
Attachments: (C-141 Initial) Copperhead 31 Federal Com #001H (30-015-38532) 5-20-2018.pdf

Mr. Bratcher/Ms. Tucker,

Please find the attached C-141 for your consideration. If you have any questions or concerns please let me know.

Thank you,

Sheldon L. Hitchcock
HSE Coordinator
COG Operating LLC
2407 Pecos Avenue | Artesia, NM 88210
Cell: 575-703-6475 | Office: 575-746-2010
slhitchcock@concho.com



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Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

<p><u>Characterization Report Checklist:</u> <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells. <input type="checkbox"/> Field data <input type="checkbox"/> Data table of soil contaminant concentration data <input type="checkbox"/> Depth to water determination <input type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release <input type="checkbox"/> Boring or excavation logs <input type="checkbox"/> Photographs including date and GIS information <input type="checkbox"/> Topographic/Aerial maps <input type="checkbox"/> Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG Copperhead 31 Fed Com #1H
Eddy County, New Mexico

25 South 28 East

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

25 South 29 East

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

25 South 30 East

6	5	4	3	2	295	1	
7	264	8	9	295	10	11	12
							390
18	17	16	15	14	13		
19	20	21	265	22	23	24	
		268					
30	29	28	27	26	25		
31	32	33	34	35	36		

26 South 28 East

6	5	4	3	2	120	1	
				21			
7	8	9	10	11	12		
							100
18	17	16	15	14	13		
				120	56		
19	20	21	22	23	24		
			120				
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	15	14	13		
		125					
19	20	21	22	57	23	24	
			57	69			
30	29	28	27	26	25		
				54.30			
31	32	33	34	35	36		
Site							

26 South 30 East

6	5	179	4	3	2	1	
	180						
7	8	9	10	11	12		
	172						
18	17	16	15	14	13		
19	20	21	22	23	24		
							180
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



USGS Home
 Contact USGS
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National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:

Groundwater

Geographic Area:

New Mexico

GO

Click to hide News Bulletins

- [Introducing The Next Generation of USGS Water Data for the Nation](#)
- [Full News](#) 

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 320106103555301

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 320106103555301 26S.29E.26.13143

Available data for this site

Groundwater: Field measurements

GO

Eddy County, New Mexico

Hydrologic Unit Code 13070001

Latitude 32°00'51.3", Longitude 103°57'42.0" NAD83

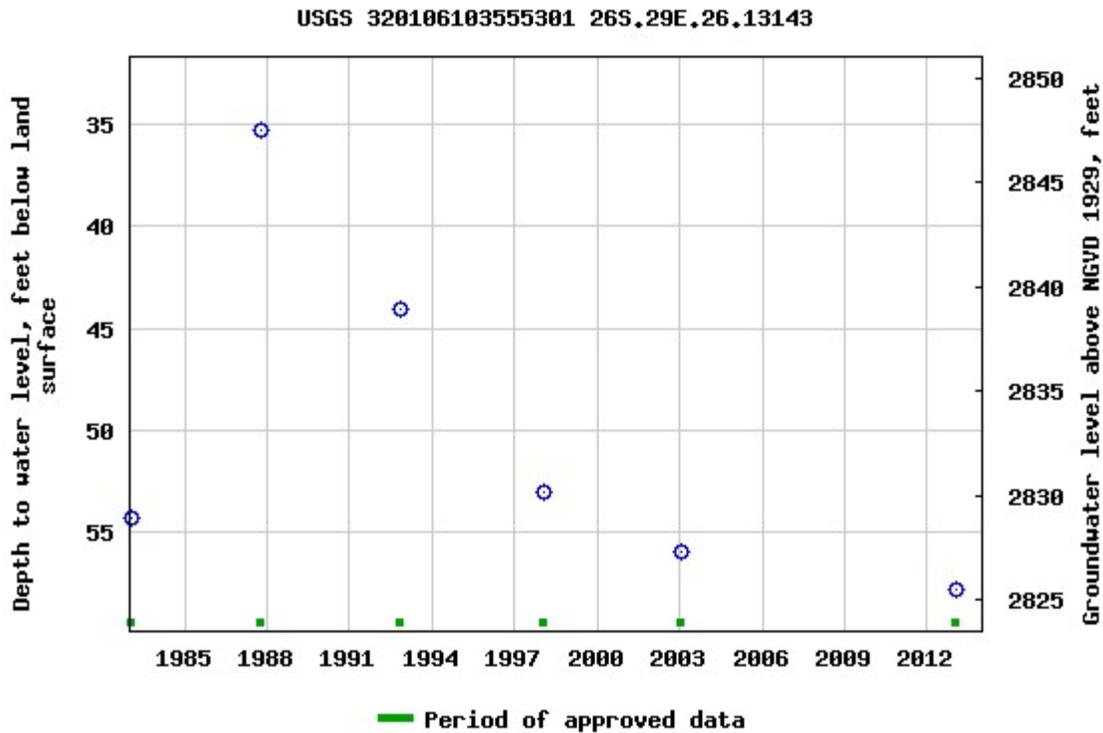
Land-surface elevation 2,883.00 feet above NGVD29

The depth of the well is 140 feet below land surface.

This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

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Title: Groundwater for New Mexico: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>



Page Contact Information: [New Mexico Water Data Maintainer](#)

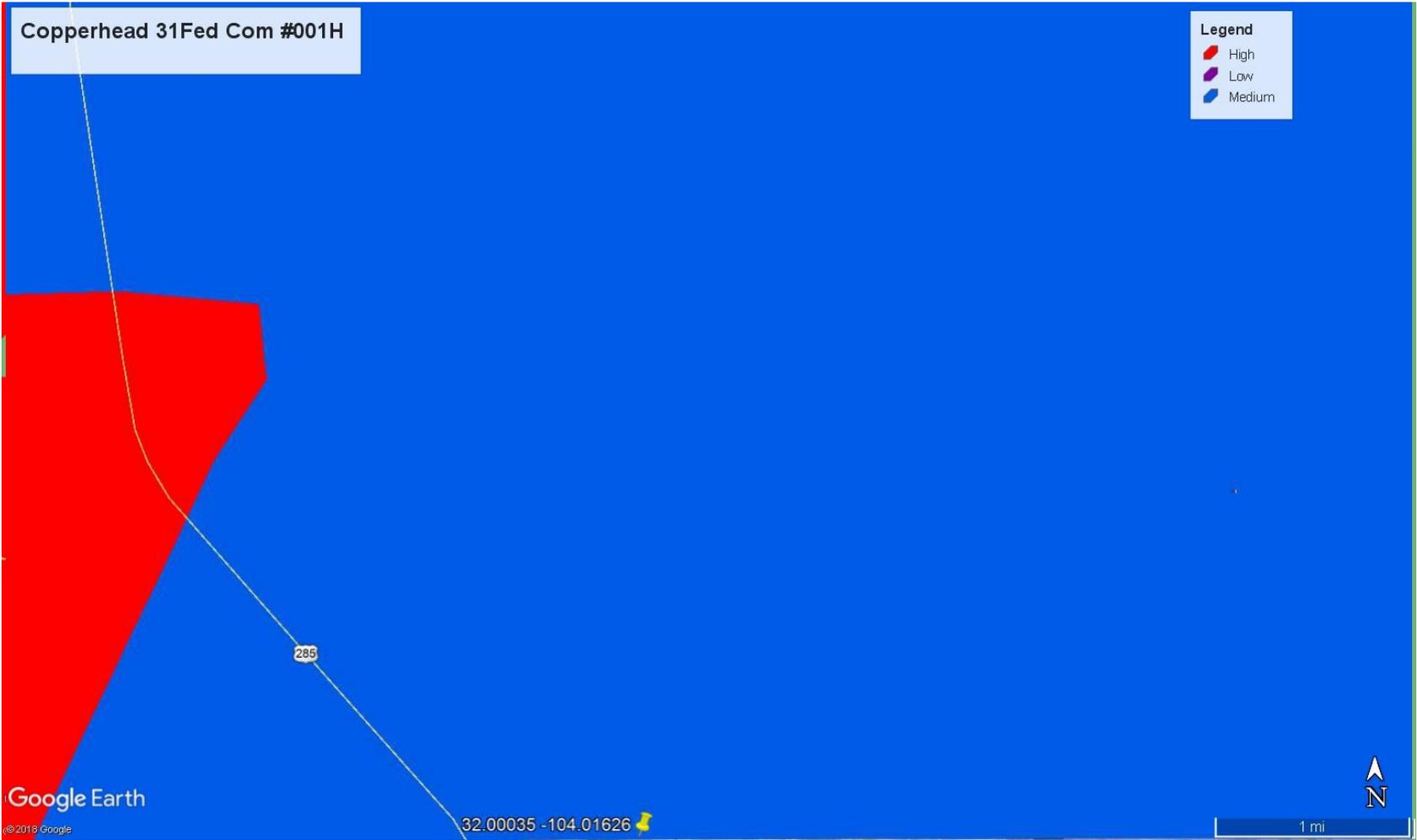
Page Last Modified: 2019-06-18 12:30:03 EDT

0.96 0.87 nadww02

Copperhead 31Fed Com #001H

Legend

- High
- Low
- Medium



Google Earth

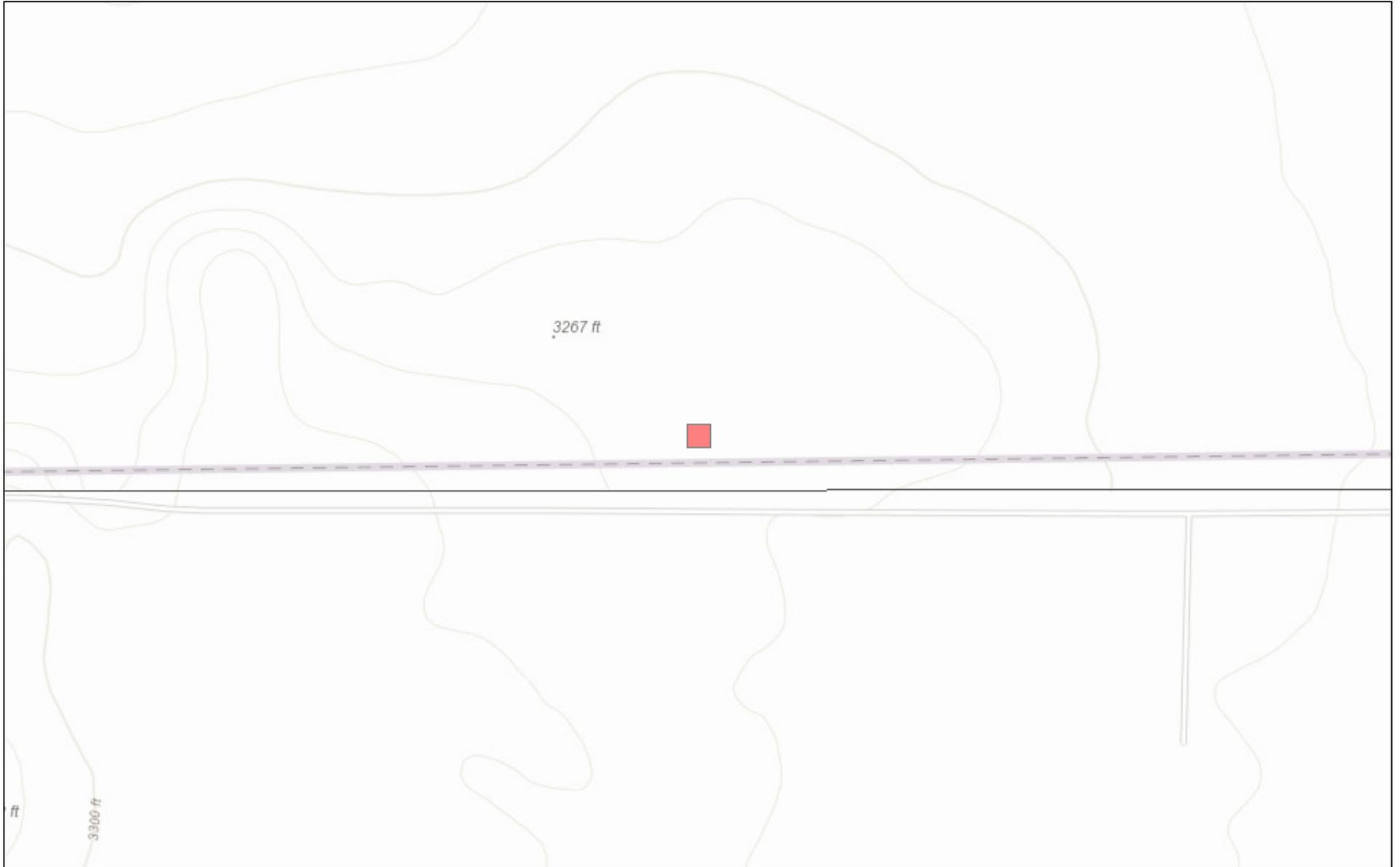
© 2018 Google

32.00035 -104.01626

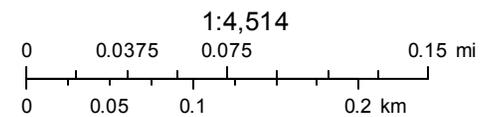


1 mi

New Mexico NFHL Data



March 18, 2019



FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

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Appendix C



DELINEATION WORKPLAN

COG – COPPERHEAD 31 FED COM #001H (Leak Date: 5/20/18)

RP # 2RP-4763

This delineation workplan and remediation proposal addresses the release associated with RP # 2RP-4763.

The following information includes:

1. Scaled digital site map with spill area demarcated and leak point identified along with sample point locations and areas of remediation at appropriate depths.
2. GPS information for sample points and sample methodology
3. Depth to groundwater information (i.e., pdf of OSE search results and/or copy of Chevron groundwater trend map).
4. Laboratory analysis results summary table and original laboratory analysis reports
5. A copy of the initial C-141
6. Potentially other pertinent information as necessary for site specific purposes.

Based on the information included in this package and the NMOCD guidelines, the following remediation is proposed:

COG will excavate the spill area as depicted on the following site diagram. The entire leak area will be excavated to a depth of 4 feet with an impermeable liner placed in the bottom of the excavation.

The entire site will then be backfilled with clean soil and revegetated (if warranted) to the standards of the appropriate regulatory agency or private surface owner.

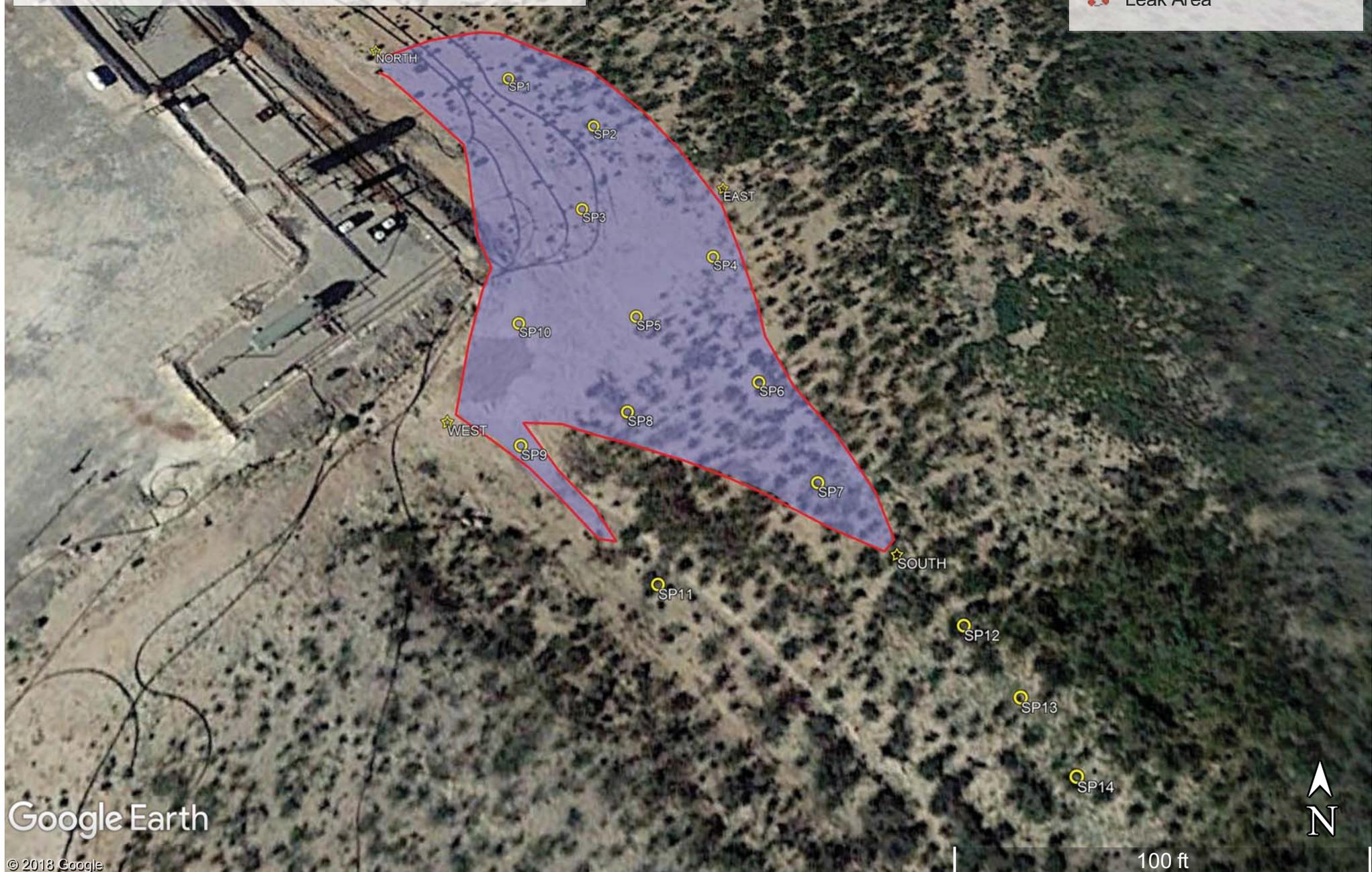
All excavated materials will be disposed of at an NMOCD-approved disposal facility.

COG, Copperhead 31 Fed Com #1H

Leak date: 05/20/2018
Eddy County, NM
AP# 30-015-38532
2RP-4763

Legend

-  4 ft Excavation with Liner
-  Cardinal sample points
-  Sample points
-  Leak Area



COG, Copperhead 31 Fed Com #1H

Sample points

SP1, N 32.00163 W-104.01612

SP2, N 32.00158 W-104.01603

SP3, N 32.00149 W-104.01604

SP4, N 32.00145 W-104.01591

SP5, N 32.00139 W-104.01598

SP6, N 32.00133 W-104.01587

SP7, N 32.00125 W-104.01582

SP8, N 32.00131 W-104.01599

SP9, N 32.00128 W-104.01608

SP10, N 32.00138 W-104.01609

SP11, N 32.00117 W-104.01596

SP12, N 32.00114 W-104.01571

SP13, N 32.00109 W-104.01567

SP14, N 32.00103 W-104.01563

NORTH, N 32.00166 W-104.01626

SOUTH, N 32.00119 W-104.01576

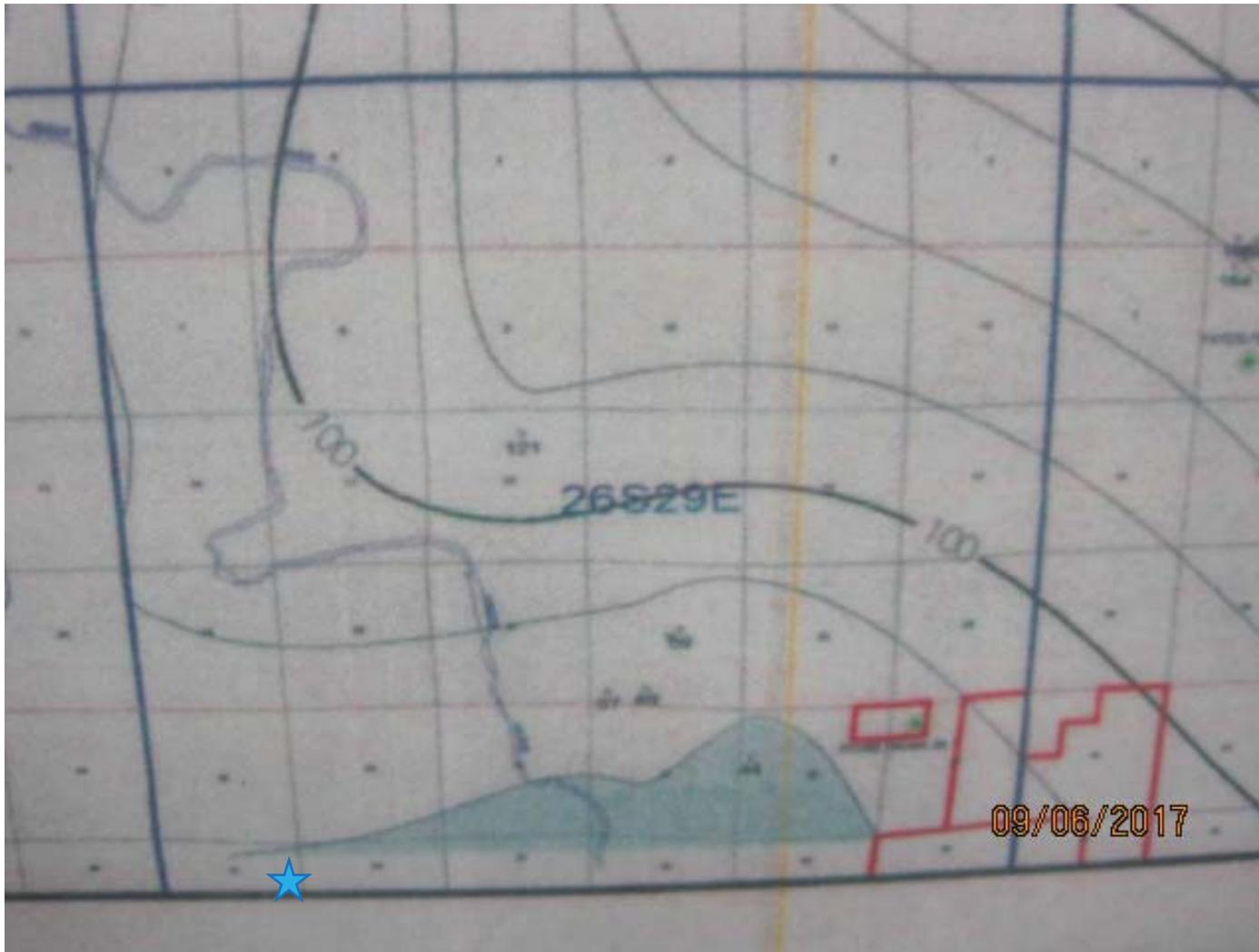
EAST, N 32.00152 W-104.01590

WEST, N 32.00130 W-104.01615

COG, Copperhead 31 Fed Com #001H

U/L H, Section 31, T26S, R29E

Groundwater: <50'





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 592205

Northing (Y): 3541658

Radius: 1700

Public Land Survey System (PLSS)

Q64: Q16: Q4: Sec: Tws: Rng:

State Plane Coordinate System - NAD27

X: ft Y: ft Zone:

State Plane Coordinate System - NAD83

X: ft Y: ft Zone:

Degrees/Minutes/Seconds

Longitude (X): Degrees: ° Minutes: ' Seconds: "
Latitude (Y): Degrees: ° Minutes: ' Seconds: "

UTM - NAD27

Easting (X): mtrs Northing (Y): mtrs Zone:

SUBMIT

All Conversion Results are displayed as NAD 1983 UTM Zone 13

Easting (X): mtrs Northing (Y): mtrs

~~ Please keep screen open to copy UTM values for Reports. ~~

Laboratory Analytical Results Summary
Copperhead 31 Fed Com #001H (5/22/18)

Analyte	Method	Sample ID	SP1 @	SP1 @ 1'	SP1 @ 2'	SP1 @ 4'	SP1 @ 6'	SP1 @ 8'	SP1 @ 9'
			SURFACE	7/12/18	7/12/18	7/12/18	7/12/18	7/12/18	7/12/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		32400	7860	8000	5040	5600	2400	544
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	SP2 @	SP2 @ 1'	SP2 @ 2'	SP2 @ 4'	SP2 @ 6'	SP2 @ 8'	SP2 @ 9'
			SURFACE	7/12/18	7/12/18	7/12/18	7/12/18	7/12/18	7/12/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		44800	8130	8660	5730	3440	2400	448
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		14.4	<10.0	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	SP3 @	SP3 @ 1'	SP3 @ 2'	SP3 @ 4'	SP3 @ 6'	SP3 @ 8'	SP3 @ 9'
			SURFACE	7/12/18	7/12/18	7/12/18	7/12/18	7/12/18	7/12/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		30400	7730	7860	6260	3280	2600	496
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

Analyte	Method	Sample ID	SP4 @	SP4 @ 1'	SP4 @ 2'	SP4 @ 4'	SP4 @ 6'	SP4 @ 8'	SP4 @ 9'
			SURFACE	7/12/18	7/12/18	7/13/18	7/13/18	7/13/18	7/13/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		34800	28400	7330	3240	1560	608	608
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

Laboratory Analytical Results Summary
Copperhead 31 Fed Com #001H (5/22/18)

		Sample ID	SP5 @ SURFACE	SP5 @ 1'	SP5 @ 2'	SP5 @ 4'	SP5 @ 6'	SP5 @ 8'	SP5 @ 9'	SP5 @ 10'
Analyte	Method	Date	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		33600	19400	6880	6720	3520	720	688	720
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		16.5	25.7	n/a	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	10.2	n/a	n/a	n/a	n/a	n/a	n/a

		Sample ID	SP6 @ SURFACE	SP6 @ 1'	SP6 @ 2'	SP6 @ 4'	SP6 @ 6'	SP6 @ 8'	SP6 @ 10'	SP6 @ 12'	SP6 @ 13'
Analyte	Method	Date	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18	7/13/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		26800	3920	1170	2440	5280	6800	1040	608	480
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		14.3	<10.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a

		Sample ID	SP7 @ SURFACE	SP7 @ 1'	SP7 @ 2'	SP7 @ 4'	SP7 @ 5'	SP7 @ 6'
Analyte	Method	Date	7/16/18	7/16/18	7/16/18	7/16/18	7/16/18	7/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		2480	352	3800	720	848	368
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP8 @ SURFACE	SP8 @ 1'	SP8 @ 2'	SP8 @ 4'	SP8 @ 5'	SP8 @ 6'
Analyte	Method	Date	7/16/18	7/16/18	7/16/18	7/16/18	7/16/18	7/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		4560	5200	1800	1580	816	336
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a

Laboratory Analytical Results Summary
Copperhead 31 Fed Com #001H (5/22/18)

		Sample ID	SP9 @ SURFACE	SP9 @ 1'	SP9 @ 2'	SP9 @ 4'	SP9 @ 5'
Analyte	Method	Date	7/16/18	7/16/18	7/16/18	7/16/18	7/16/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a
Chloride	SM4500Cl-B		11400	4480	5440	1840	272
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a

		Sample ID	SP10 @ SURFACE	SP10 @ 1'	SP10 @ 2'	SP10 @ 4'	SP10 @ 6'	SP10 @ 7'	SP10 @ 8'
Analyte	Method	Date	7/16/18	7/16/18	7/17/18	7/17/18	7/17/18	7/17/18	7/17/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		7000	6300	6500	6100	544	512	368
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

		Sample ID	SP11 @ SURFACE
Analyte	Method	Date	7/17/18
			mg/kg
Chloride	SM4500Cl-B		<16.0

		Sample ID	SP12 @ SURFACE	SP12 @ 1'
Analyte	Method	Date	7/18/18	7/18/18
			mg/kg	mg/kg
Chloride	SM4500Cl-B		<16.0	<16.0

		Sample ID	SP13 @ SURFACE	SP13 @ 1'
Analyte	Method	Date	7/18/18	7/18/18
			mg/kg	mg/kg
Chloride	SM4500Cl-B		<16.0	<16.0

		Sample ID	SP14 @ SURFACE	SP14 @ 1'
Analyte	Method	Date	7/18/18	7/18/18
			mg/kg	mg/kg
Chloride	SM4500Cl-B		<16.0	32

<i>Cardinal</i>		Sample ID	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Analyte	Method	Date	7/18/18	7/18/18	7/18/18	7/18/18
			mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500Cl-B		368	304	384	368

July 27, 2018

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: COPPERHEAD 31 FED COM #001H

Enclosed are the results of analyses for samples received by the laboratory on 07/24/18 12:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 1 @ SURFACE (H802014-01)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243	
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614	
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724	
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19	
Total BTEX	<0.300	0.300	07/24/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32400	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359	
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	221	110	200	0.563	
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 1 @ 1' (H802014-02)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/24/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7860	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	221	110	200	0.563		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 110 % 41-142

Surrogate: 1-Chlorooctadecane 109 % 37.6-147

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Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 1 @ 2' (H802014-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8000	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 1 @ 4' (H802014-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5040	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 1 @ 6' (H802014-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5600	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 1 @ 8' (H802014-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2400	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 1 @ 9' (H802014-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	07/26/2018	ND	432	108	400	0.00	

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Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 2 @ SURFACE (H802014-08)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/24/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	44800	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359		
DRO >C10-C28*	14.4	10.0	07/25/2018	ND	221	110	200	0.563		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 114 % 41-142

Surrogate: 1-Chlorooctadecane 112 % 37.6-147

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Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 2 @ 1' (H802014-09)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/24/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	8130	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	221	110	200	0.563		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 107 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

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Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 2 @ 2' (H802014-10)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8660	16.0	07/26/2018	ND	432	108	400	0.00	QM-07

Sample ID: SP 2 @ 4' (H802014-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5730	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 2 @ 6' (H802014-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3440	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 2 @ 8' (H802014-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2400	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 2 @ 9' (H802014-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	07/26/2018	ND	432	108	400	0.00	

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Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 3 @ SURFACE (H802014-15)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/24/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	30400	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	221	110	200	0.563		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 99.0 % 37.6-147

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Analytical Results For:

 BBC International, Inc.
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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 3 @ 1' (H802014-16)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/24/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	7730	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	221	110	200	0.563		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 109 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

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 Hobbs NM, 88241
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Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 3 @ 2' (H802014-17)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7860	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 3 @ 4' (H802014-18)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6260	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 3 @ 6' (H802014-19)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3280	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 3 @ 8' (H802014-20)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2600	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 3 @ 9' (H802014-21)

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	07/26/2018	ND	432	108	400	0.00	

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Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 4 @ SURFACE (H802014-22)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/24/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	34800	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	221	110	200	0.563		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 108 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

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Received:	07/24/2018	Sampling Date:	07/12/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 4 @ 1' (H802014-23)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243	
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614	
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724	
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19	
Total BTEX	<0.300	0.300	07/24/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	28400	16.0	07/26/2018	ND	432	108	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	07/25/2018	ND	213	106	200	0.359	
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	221	110	200	0.563	
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND					

Surrogate: 1-Chlorooctane 109 % 41-142

Surrogate: 1-Chlorooctadecane 109 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 4 @ 2' (H802014-24)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7330	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 4 @ 4' (H802014-25)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3240	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 4 @ 6' (H802014-26)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1560	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 4 @ 8' (H802014-27)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	07/26/2018	ND	432	108	400	0.00	

Sample ID: SP 4 @ 9' (H802014-28)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	07/26/2018	ND	432	108	400	0.00	

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Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 5 @ SURFACE (H802014-29)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/24/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/24/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/24/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/24/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/24/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	33600	16.0	07/26/2018	ND	432	108	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	07/24/2018	ND	203	102	200	10.7		
DRO >C10-C28*	16.5	10.0	07/24/2018	ND	226	113	200	8.11		
EXT DRO >C28-C36	<10.0	10.0	07/24/2018	ND						

Surrogate: 1-Chlorooctane 96.4 % 41-142

Surrogate: 1-Chlorooctadecane 110 % 37.6-147

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Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 5 @ 1' (H802014-30)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243	
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614	
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724	
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19	
Total BTEX	<0.300	0.300	07/25/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	19400	16.0	07/26/2018	ND	416	104	400	0.00	QM-07

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	07/25/2018	ND	203	102	200	10.7	
DRO >C10-C28*	25.7	10.0	07/25/2018	ND	226	113	200	8.11	
EXT DRO >C28-C36	10.2	10.0	07/25/2018	ND					

Surrogate: 1-Chlorooctane 93.0 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

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Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 5 @ 2' (H802014-31)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6880	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 5 @ 4' (H802014-32)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6720	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 5 @ 6' (H802014-33)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3520	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 5 @ 8' (H802014-34)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 5 @ 9' (H802014-35)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	07/26/2018	ND	416	104	400	0.00	

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Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 5 @ 10' (H802014-36)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	07/26/2018	ND	416	104	400	0.00	

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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 6 @ SURFACE (H802014-37)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/25/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	26800	16.0	07/26/2018	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	07/25/2018	ND	203	102	200	10.7		
DRO >C10-C28*	14.3	10.0	07/25/2018	ND	226	113	200	8.11		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 86.2 % 41-142

Surrogate: 1-Chlorooctadecane 90.9 % 37.6-147

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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 6 @ 1' (H802014-38)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/25/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3920	16.0	07/26/2018	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	07/25/2018	ND	203	102	200	10.7		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 94.7 % 41-142

Surrogate: 1-Chlorooctadecane 98.7 % 37.6-147

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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 6 @ 2' (H802014-39)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1170	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 6 @ 4' (H802014-40)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2440	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 6 @ 6' (H802014-41)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5280	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 6 @ 8' (H802014-42)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6800	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 6 @ 10' (H802014-43)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1040	16.0	07/26/2018	ND	416	104	400	0.00	

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Received:	07/24/2018	Sampling Date:	07/13/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 6 @ 12' (H802014-44)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 6 @ 13' (H802014-45)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	07/26/2018	ND	416	104	400	0.00	

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Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 7 @ SURFACE (H802014-46)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243	
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614	
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724	
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19	
Total BTEX	<0.300	0.300	07/25/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2480	16.0	07/26/2018	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	07/25/2018	ND	203	102	200	10.7	
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11	
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND					

Surrogate: 1-Chlorooctane 96.9 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 7 @ 1' (H802014-47)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243	
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614	
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724	
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19	
Total BTEX	<0.300	0.300	07/25/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	07/26/2018	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	07/25/2018	ND	203	102	200	10.7	
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11	
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND					

Surrogate: 1-Chlorooctane 93.5 % 41-142

Surrogate: 1-Chlorooctadecane 96.2 % 37.6-147

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 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 7 @ 2' (H802014-48)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3800	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 7 @ 4' (H802014-49)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	07/26/2018	ND	416	104	400	0.00	

Sample ID: SP 7 @ 5' (H802014-50)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	848	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 7 @ 6' (H802014-51)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	07/27/2018	ND	416	104	400	3.77	

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Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 8 @ SURFACE (H802014-52)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/25/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4560	16.0	07/27/2018	ND	416	104	400	3.77		

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	07/25/2018	ND	203	102	200	10.7		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 8 @ 1' (H802014-53)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/25/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5200	16.0	07/27/2018	ND	416	104	400	3.77		

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	07/25/2018	ND	203	102	200	10.7		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 98.9 % 41-142
Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 8 @ 2' (H802014-54)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1800	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 8 @ 4' (H802014-55)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1580	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 8 @ 5' (H802014-56)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	816	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 8 @ 6' (H802014-57)

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	07/27/2018	ND	416	104	400	3.77	

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Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 9 @ SURFACE (H802014-58)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/25/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	11400	16.0	07/27/2018	ND	416	104	400	3.77		

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	07/25/2018	ND	203	102	200	10.7		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 85.7 % 41-142

Surrogate: 1-Chlorooctadecane 85.4 % 37.6-147

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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 9 @ 1' (H802014-59)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243		
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614		
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724		
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19		
Total BTEX	<0.300	0.300	07/25/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4480	16.0	07/27/2018	ND	416	104	400	3.77		

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	07/25/2018	ND	203	102	200	10.7		
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11		
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND						

Surrogate: 1-Chlorooctane 98.6 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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 Cliff Brunson
 P.O. Box 805
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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 9 @ 2' (H802014-60)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5440	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 9 @ 4' (H802014-61)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1840	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 9 @ 5' (H802014-62)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	07/27/2018	ND	416	104	400	3.77	

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Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 10 @ SURFACE (H802014-63)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243	
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614	
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724	
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19	
Total BTEX	<0.300	0.300	07/25/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7000	16.0	07/27/2018	ND	416	104	400	3.77	

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	07/25/2018	ND	203	102	200	10.7	
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11	
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND					

Surrogate: 1-Chlorooctane 83.9 % 41-142

Surrogate: 1-Chlorooctadecane 83.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/16/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 10 @ 1' (H802014-64)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2018	ND	1.88	93.9	2.00	0.243	
Toluene*	<0.050	0.050	07/25/2018	ND	1.87	93.7	2.00	0.614	
Ethylbenzene*	<0.050	0.050	07/25/2018	ND	1.87	93.6	2.00	0.724	
Total Xylenes*	<0.150	0.150	07/25/2018	ND	5.83	97.1	6.00	1.19	
Total BTEX	<0.300	0.300	07/25/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6300	16.0	07/27/2018	ND	416	104	400	3.77	

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	07/25/2018	ND	203	102	200	10.7	
DRO >C10-C28*	<10.0	10.0	07/25/2018	ND	226	113	200	8.11	
EXT DRO >C28-C36	<10.0	10.0	07/25/2018	ND					

Surrogate: 1-Chlorooctane 80.4 % 41-142

Surrogate: 1-Chlorooctadecane 80.8 % 37.6-147

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 BBC International, Inc.
 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/17/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 10 @ 2' (H802014-65)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6500	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 10 @ 4' (H802014-66)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6100	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 10 @ 6' (H802014-67)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 10 @ 7' (H802014-68)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	512	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 10 @ 8' (H802014-69)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	07/27/2018	ND	416	104	400	3.77	

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Received:	07/24/2018	Sampling Date:	07/17/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 11 @ SURFACE (H802014-70)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 12 @ SURFACE (H802014-71)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 12 @ 1' (H802014-72)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 13 @ SURFACE (H802014-73)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 13 @ 1' (H802014-74)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/27/2018	ND	416	104	400	3.77	

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 Cliff Brunson
 P.O. Box 805
 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/18/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SP 14 @ SURFACE (H802014-75)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: SP 14 @ 1' (H802014-76)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: NORTH @ SURFACE (H802014-77)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: EAST @ SURFACE (H802014-78)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	07/27/2018	ND	416	104	400	3.77	

Sample ID: WEST @ SURFACE (H802014-79)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	07/27/2018	ND	416	104	400	3.77	

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 Hobbs NM, 88241
 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/17/2018
Reported:	07/27/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD 31 FED COM #001H	Sampling Condition:	Cool & Intact
Project Number:	(5/20/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SOUTH @ SURFACE (H802014-80)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	07/27/2018	ND	416	104	400	3.77	

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Celey D. Keene, Lab Director/Quality Manager

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.
- 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



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

MAY 21 2018

Form C-141
Revised April 3, 2017

DISTRICT II - ARTESIA O.C.D.
Submit Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

NAB1814258390

OPERATOR

Initial Report Final Report

Name of Company: COG Production, LLC (OGRID 217955)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No.: 432-683-7443
Facility Name: Copperhead 31 Federal Com #001H	Facility Type: Tank Battery
Surface Owner: BLM	Mineral Owner: Federal
API No.: 30-015-38532	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	31	26S	29E	480	South	480	East	Eddy

Latitude: 32.0014305 Longitude: -104.0168457 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 240bbbs	Volume Recovered: 9bbbs
Source of Release: Flowline	Date and Hour of Occurrence: 5/20/2018	Date and Hour of Discovery: 5/20/2018 9:15am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher-NMOCD Shelly Tucker-BLM	
By Whom? Sheldon Hitchcock	Date and Hour: 5/20/2018 6:15pm	
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 4-inch poly line ruptured due to a suspected high line pressure. The damaged section of line will be replaced.		
Describe Area Affected and Cleanup Action Taken.* The release impacted the pasture east of the tank battery. Concho will have the area evaluated for any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		

OIL CONSERVATION DIVISION

Signature: <i>Sheldon Hitchcock</i>	Approved by Environmental Specialist: <i>Mike Bratcher</i>	
Printed Name: Sheldon L. Hitchcock	Approval Date: <i>5/22/18</i>	Expiration Date: <i>N/A</i>
Title: HSE Coordinator	Conditions of Approval: <i>See attached</i>	
E-mail Address: slhitchcock@concho.com	Attached <input type="checkbox"/> <i>2RP-4763</i>	
Date: 5/21/2018	Phone: 575-746-2010	

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 5/21/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RD-47123 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 2 office in ARTESIA on or before 6/21/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- **Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water.** If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

Bratcher, Mike, EMNRD

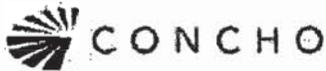
From: Sheldon Hitchcock <SLHitchcock@concho.com>
Sent: Monday, May 21, 2018 10:27 AM
To: Bratcher, Mike, EMNRD; Weaver, Crystal, EMNRD; stucker@blm.gov
Cc: Robert McNeill; Rebecca Haskell; Dakota Neel; Christopher Gray; DeAnn Grant
Subject: (C-141 Initial) Copperhead 31 Federal Com #001H (30-015-38532) 5/20/2018
Attachments: (C-141 Initial) Copperhead 31 Federal Com #001H (30-015-38532) 5-20-2018.pdf

Mr. Bratcher/Ms. Tucker,

Please find the attached C-141 for your consideration. If you have any questions or concerns please let me know.

Thank you,

Sheldon L. Hitchcock
HSE Coordinator
COG Operating LLC
2407 Pecos Avenue | Artesia, NM 88210
Cell: 575-703-6475 | Office: 575-746-2010
slhitchcock@concho.com



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