



## DELINEATION WORKPLAN

### COG – COPPERHEAD FEE A #003H (Leak Date: 5/14/18)

#### RP # 2RP-4747

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This delineation workplan and remediation proposal addresses the release associated with RP # 2RP-4747.

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 leak area near SP1 – SP3 (blue shade on diagram) will be excavated to a depth of 1 foot. The leak area near SP4 and SP5 (purple shade on diagram) will be excavated to a depth of 2 feet. The leak area near SP6 – SP8 (green shade on diagram) will be excavated to a depth of 4 feet with an impermeable liner placed in the bottom of the excavation. The leak area near SP9 (pink shade on diagram) will be excavated to a depth of 2.5 feet.***

***SP8 is the leak point and it will be fully delineated utilizing a rig the week of August 20<sup>th</sup>. Upon receiving the laboratory results, COG will notify the OCD and BLM with the results. The current results indicate that a liner needs to be installed therefore this plan has been submitted prior to complete delineation.***

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.

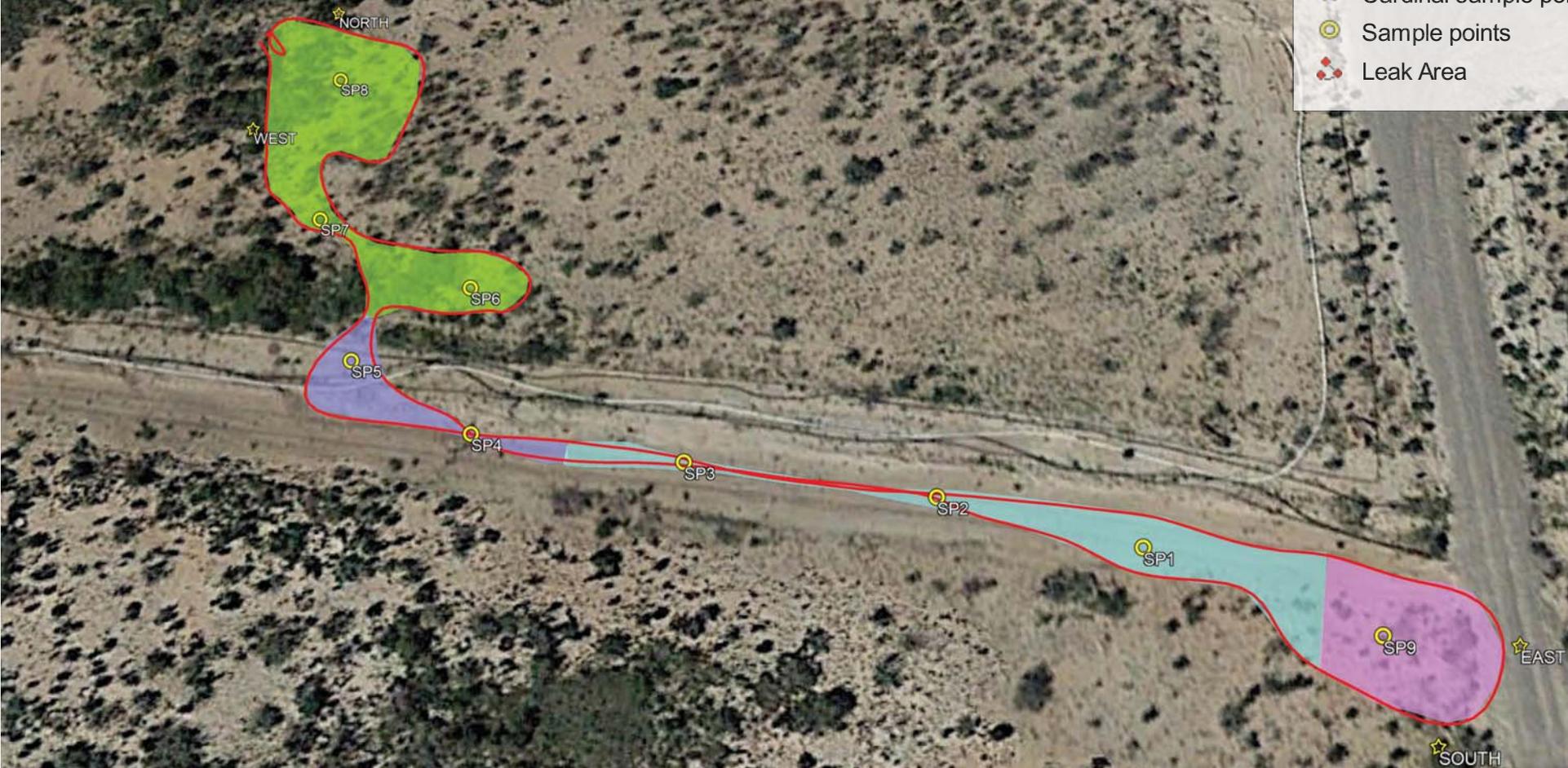
All excavated materials will be disposed of at an NMOCD-approved disposal facility.

# COG, Copperhead Fee A #003H

Leak date: 05/14/2018  
Eddy County, NM  
API# 30-015-42327  
2RP-4747

## Legend

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



COG, Cooperhead Fee A #003H

Sample points

SP1, N 32.00056 W-104.02793

SP2, N 32.00060 W-104.02810

SP3, N 32.00062 W-104.02830

SP4, N 32.00065 W-104.02848

SP5, N 32.00071 W-104.02859

SP6, N 32.00077 W-104.02850

SP7, N 32.00083 W-104.02864

SP8, N 32.00097 W-104.02865

SP9, N 32.00050 W-104.02775

NORTH, N 32.00104 W-104.02866

SOUTH, N 32.00042 W-104.02772

EAST, N 32.00049 W-104.02764

WEST, N 32.00092 W-104.02872

**COG, Copperhead Fee A #003H**  
**U/L E, Section 31, T26S, R29E**  
**Groundwater: 50'**





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

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(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

**UTMAD83 Radius Search (in meters):**

**Easting (X):** 591592

**Northing (Y):** 3541335

**Radius:** 1700

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

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5/22/18 10:28 AM

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

**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 Fee A #003H (5/14/18)

		Sample ID	SP1 @ SURFACE	SP1 @ 1'	SP1 @ 2'	SP1 @ 3'
Analyte	Method	Date	7/18/18	7/18/18	7/18/18	7/18/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a
Chloride	SM4500Cl-B		4320	608	272	224
GRO	TPH 8015M		<10.0	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a

		Sample ID	SP2 @ SURFACE	SP2 @ 1'	SP2 @ 2'	SP2 @ 3'
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		4720	512	288	240

		Sample ID	SP3 @ SURFACE	SP3 @ 1'	SP3 @ 2'	SP3 @ 3'
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		3760	608	272	256

		Sample ID	SP4 @ SURFACE	SP4 @ 1'	SP4 @ 2'	SP4 @ 3'
Analyte	Method	Date	7/18/18	7/19/18	7/19/18	7/19/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a
Chloride	SM4500Cl-B		32000	752	656	208
GRO	TPH 8015M		<10.0	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a

		Sample ID	SP5 @ SURFACE	SP5 @ 1'	SP5 @ 2'	SP5 @ 3'
Analyte	Method	Date	7/19/18	7/19/18	7/19/18	7/19/18
			mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500Cl-B		33600	720	544	160

		Sample ID	SP6 @ SURFACE	SP6 @ 1'	SP6 @ 2'	SP6 @ 3'	SP6 @ 4'	SP6 @ 5'
Analyte	Method	Date	7/19/18	7/19/18	7/19/18	7/19/18	7/19/18	7/19/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500Cl-B		29600	640	1540	1420	560	224

		Sample ID	SP7 @ SURFACE	SP7 @ 1'	SP7 @ 3'	SP7 @ 4'	SP7 @ 7'	SP7 @ 8'
Analyte	Method	Date	7/19/18	7/19/18	7/19/18	7/19/18	7/19/18	7/19/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500Cl-B		8800	4160	960	960	496	128

		Sample ID	SP8 @ SURFACE	SP8 @ 1'	SP8 @ 5'	SP8 @ 9'	SP8 @ 13'
Analyte	Method	Date	7/19/18	7/19/18	7/20/18	7/20/18	7/20/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		7600	4560	9600	7600	6000
GRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a
EXT DRO	TPH 8015M		<10.0	n/a	n/a	n/a	n/a

		Sample ID	SP9 @ SURFACE	SP9 @ 1'	SP9 @ 2'	SP9 @ 3'	SP9 @ 4'
Analyte	Method	Date	7/20/18	7/20/18	7/20/18	7/20/18	7/20/18
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500Cl-B		44800	3240	1710	432	128

		Sample ID	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Analyte	Method	Date	7/20/18	7/20/18	7/20/18	7/20/18
			mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500Cl-B		160	160	160	192

July 30, 2018

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: COPPERHEAD FEE A #3H

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](http://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:	07/18/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 1 @ SURFACE (H802015-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/27/2018	ND	1.83	91.5	2.00	5.32		
Toluene*	<0.050	0.050	07/27/2018	ND	1.87	93.5	2.00	6.73		
Ethylbenzene*	<0.050	0.050	07/27/2018	ND	1.90	95.0	2.00	6.51		
Total Xylenes*	<0.150	0.150	07/27/2018	ND	5.56	92.7	6.00	5.88		
Total BTEX	<0.300	0.300	07/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 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	
<b>Chloride</b>	<b>4320</b>	16.0	07/27/2018	ND	432	108	400	7.69		

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	07/26/2018	ND	182	91.2	200	2.04		
DRO >C10-C28*	<10.0	10.0	07/26/2018	ND	192	95.9	200	2.78		
EXT DRO >C28-C36	<10.0	10.0	07/26/2018	ND						

Surrogate: 1-Chlorooctane 91.0 % 41-142

Surrogate: 1-Chlorooctadecane 93.1 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/18/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 1 @ 1' (H802015-02)**

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	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 1 @ 2' (H802015-03)**

Chloride, SM4500Cl-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	432	108	400	7.69	

**Sample ID: SP 1 @ 3' (H802015-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 2 @ SURFACE (H802015-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4720	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 2 @ 1' (H802015-06)**

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	432	108	400	7.69	

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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/18/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 2 @ 2' (H802015-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>288</b>	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 2 @ 3' (H802015-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>240</b>	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 3 @ SURFACE (H802015-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3760</b>	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 3 @ 1' (H802015-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>608</b>	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 3 @ 2' (H802015-11)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>272</b>	16.0	07/27/2018	ND	432	108	400	7.69	

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Received:	07/24/2018	Sampling Date:	07/18/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 3 @ 3' (H802015-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>256</b>	16.0	07/27/2018	ND	432	108	400	7.69	

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Received:	07/24/2018	Sampling Date:	07/18/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 4 @ SURFACE (H802015-13)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/27/2018	ND	1.83	91.5	2.00	5.32		
Toluene*	<0.050	0.050	07/27/2018	ND	1.87	93.5	2.00	6.73		
Ethylbenzene*	<0.050	0.050	07/27/2018	ND	1.90	95.0	2.00	6.51		
Total Xylenes*	<0.150	0.150	07/27/2018	ND	5.56	92.7	6.00	5.88		
Total BTEX	<0.300	0.300	07/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 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	32000	16.0	07/27/2018	ND	432	108	400	7.69		

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	07/26/2018	ND	182	91.2	200	2.04		
DRO >C10-C28*	<10.0	10.0	07/26/2018	ND	192	95.9	200	2.78		
EXT DRO >C28-C36	<10.0	10.0	07/26/2018	ND						

Surrogate: 1-Chlorooctane 92.7 % 41-142

Surrogate: 1-Chlorooctadecane 96.0 % 37.6-147

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 Fax To: (575) 397-0397

Received:	07/24/2018	Sampling Date:	07/19/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 4 @ 1' (H802015-14)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 4 @ 2' (H802015-15)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 4 @ 3' (H802015-16)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 5 @ SURFACE (H802015-17)**

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	07/27/2018	ND	432	108	400	7.69	

**Sample ID: SP 5 @ 1' (H802015-18)**

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	07/27/2018	ND	432	108	400	7.69	

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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:	07/19/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 5 @ 2' (H802015-19)**

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	432	108	400	7.69	

**Sample ID: SP 5 @ 3' (H802015-20)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 6 @ SURFACE (H802015-21)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	29600	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 6 @ 1' (H802015-22)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 6 @ 2' (H802015-23)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1540	16.0	07/27/2018	ND	416	104	400	3.77	

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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:	07/19/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 6 @ 3' (H802015-24)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1420	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 6 @ 4' (H802015-25)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 6 @ 5' (H802015-26)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 7 @ SURFACE (H802015-27)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8800	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 7 @ 1' (H802015-28)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4160	16.0	07/27/2018	ND	416	104	400	3.77	

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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:	07/19/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 7 @ 3' (H802015-29)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>960</b>	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 7 @ 4' (H802015-30)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>960</b>	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 7 @ 7' (H802015-31)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>496</b>	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 7 @ 8' (H802015-32)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>128</b>	16.0	07/27/2018	ND	416	104	400	3.77	

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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:	07/19/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 8 @ SURFACE (H802015-33)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/27/2018	ND	1.83	91.5	2.00	5.32		
Toluene*	<0.050	0.050	07/27/2018	ND	1.87	93.5	2.00	6.73		
Ethylbenzene*	<0.050	0.050	07/27/2018	ND	1.90	95.0	2.00	6.51		
Total Xylenes*	<0.150	0.150	07/27/2018	ND	5.56	92.7	6.00	5.88		
Total BTEX	<0.300	0.300	07/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	
<b>Chloride</b>	<b>7600</b>	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	07/26/2018	ND	182	91.2	200	2.04		
DRO >C10-C28*	<10.0	10.0	07/26/2018	ND	192	95.9	200	2.78		
EXT DRO >C28-C36	<10.0	10.0	07/26/2018	ND						

Surrogate: 1-Chlorooctane 95.1 % 41-142

Surrogate: 1-Chlorooctadecane 96.0 % 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:	07/19/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 8 @ 1' (H802015-34)**

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	

**Sample ID: SP 8 @ 5' (H802015-35)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9600	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 8 @ 9' (H802015-36)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7600	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 8 @ 13' (H802015-37)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6000	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 8 @ 16' (H802015-38)**

Chloride, SM4500Cl-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	

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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:	07/20/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: SP 9 @ SURFACE (H802015-39)**

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	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 9 @ 1' (H802015-40)**

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	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 9 @ 2' (H802015-41)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1710	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 9 @ 3' (H802015-42)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SP 9 @ 4' (H802015-43)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	07/27/2018	ND	416	104	400	3.77	

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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:	07/20/2018
Reported:	07/30/2018	Sampling Type:	Soil
Project Name:	COPPERHEAD FEE A #3H	Sampling Condition:	Cool & Intact
Project Number:	(5/14/18)	Sample Received By:	Tamara Oldaker
Project Location:	COG		

**Sample ID: NORTH SURFACE (H802015-44)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: EAST SURFACE (H802015-45)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: WEST SURFACE (H802015-46)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	07/27/2018	ND	416	104	400	3.77	

**Sample ID: SOUTH SURFACE (H802015-47)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	07/27/2018	ND	416	104	400	3.77	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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



---

Celey D. Keene, Lab Director/Quality Manager











**CARDINAL LABORATORIES**  
 101 East Marland, Hobbs, NM 88240  
 (505) 393-2326 FAX (505) 393-2476

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

Company Name: BBC International, Inc.				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																							
Project Manager: Cliff Brunson				P.O. #:																											
Address: P.O. Box 805				Company:																											
City: Hobbs		State: NM Zip: 88241		Attn:																											
Phone #: 575-397-6388		Fax #: 575-397-0397		Address:																											
Project #:		Project Owner:		City:																											
Project Name: Copperhead Fee A #3H 5-14-18				State: Zip:																											
Project Location:				Phone #:																											
Sampler Name: Jeff Ornelas				Fax #:																											
FOR LAB USE ONLY																															
Lab I.D.		Sample I.D.		G/RAB OR (C)OMP.	# CONTAINERS	MATRIX														PRESERV.			SAMPLING		Chloride						
						GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE		TIME														
H802015				G	1			✓				✓			7-20-18		12:47 pm														
41		SP9 @ 2'		G	1			✓				✓			7-20-18		12:55 pm														
42		SP9 @ 3'		G	1			✓				✓			7-20-18		1:11 pm														
43		SP9 @ 4'		G	1			✓				✓			7-20-18		1:15 pm														
44		North Surface		G	1			✓				✓			7-20-18		1:20 pm														
45		East Surface		G	1			✓				✓			7-20-18		1:25 pm														
46		West Surface		G	1			✓				✓			7-20-18		1:30 pm														
47		South Surface		G	1			✓				✓			7-20-18		1:30 pm														

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Relinquished By: <i>Jeff Ornelas</i>		Date: 7-20-18		Received By: <i>[Signature]</i>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:	
		Time: 5:00				Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Relinquished By: <i>[Signature]</i>		Date: 7-24-18		Received By: <i>[Signature]</i>		REMARKS:			
		Time: 12:40							
Delivered By: (Circle One) <i>UPS</i>		-5.8°C		Sample Condition					
Sampler - UPS - Bus - Other:		Corrected -5.85°C		Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No		TO #15			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

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

State of New Mexico  
Energy Minerals and Natural Resources

Form C-141  
Revised April 3, 2017

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

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

**Release Notification and Corrective Action**

**OPERATOR**  Initial Report  Final Report

Name of Company: COG Production, LLC (OGRID #217955)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland, TX 79701	Telephone No. 432-683-7443
Facility Name: <b>Copperhead Fee A #003H</b>	Facility Type: Flowline

Surface Owner: Private	Mineral Owner: Private	API No. 30-015-42327
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	31	26S	29E	415	South	990	West	Eddy

Latitude 32.0012321 Longitude -104.0292206 NAD83

**NATURE OF RELEASE**

Type of Release Produced Water	Volume of Release 122 bbl.	Volume Recovered 10 bbl.
Source of Release: Flowline Leak	Date and Hour of Occurrence May 14, 2018 10:40am	Date and Hour of Discovery May 14, 2018 10:40am
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 Crystal Weaver - NMOCD	
By Whom? Sheldon Hitchcock	Date and Hour May 14, 2018 2:08pm	
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.\*

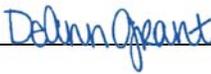
Describe Cause of Problem and Remedial Action Taken.\*

The release was caused by the flowline blowing out at the transition. The transition is being repaired or replaced.

Describe Area Affected and Cleanup Action Taken.\*

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

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

Signature: 	<b><u>OIL CONSERVATION DIVISION</u></b>	
Printed Name: DeAnn Grant	Approved by Environmental Specialist:	
Title: HSE Administrative Assistant	Approval Date:	Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: May 15, 2018 Phone: 432-253-4513		

\* Attach Additional Sheets If Necessary