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E-MAIL: cbrunson@bbcinternational.com

DELINEATION WORKPLAN

COG – LOCO HILLS SWD PIPELINE (Leak Date: 10/21/16)

RP # UNKNOWN (NOT RECEIVED FROM NMOCD)

This delineation workplan and remediation proposal addresses the release associated with RP # Unknown.

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 area (yellow shade on diagram) will be excavated to a depth of 4 feet and then an impermeable liner will be installed in the excavation and backfilled with top soil.

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.

APPROVED

By Olivia Yu at 10:26 am, Dec 19, 2017

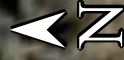
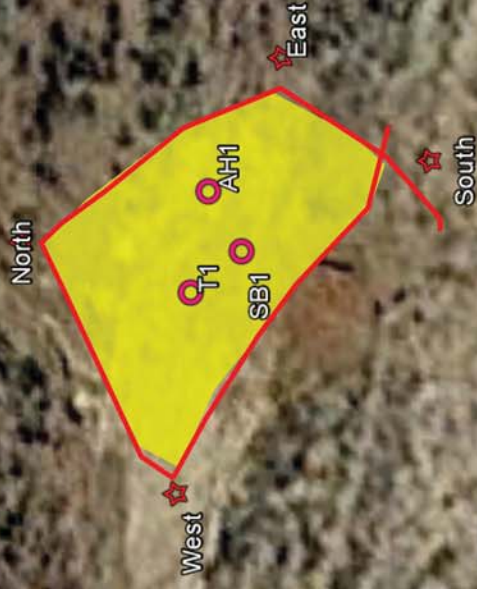
NMOCD approves of the delineation completed and proposed remediation for 1RP-4493. Confirmation sidewall samples tested for BTEX, TPH extended, and chlorides are required.

COG, Loco Hills SWD Pipeline

Leak date: 10/21/16
Lea County, NM

Legend

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



50 ft

COG, Loco Hills SWD Pipeline

Sample points, hang auger

AH1, N 32.79035 W-103.75660

T1, N 32.79036 W-103.75663

Drilling sample:

SB1, N 32.79034 W-103.75661

Cardinal points sample, hand auger:

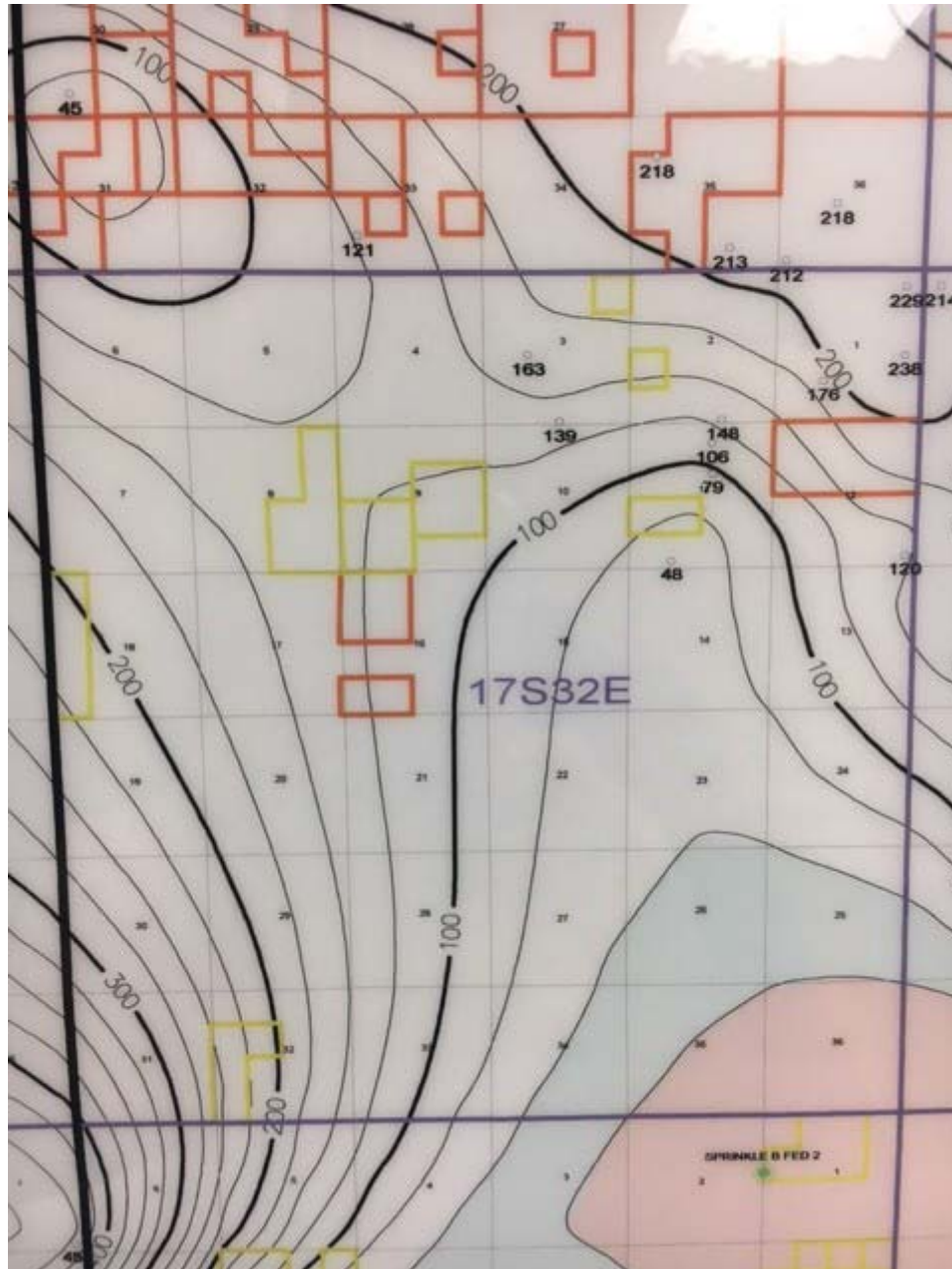
NORTH, N 32.79041 W-103.75662

SOUTH, N 32.79029 W-103.75659

EAST, N 32.79033 W-103.75656

WEST, N 32.79036 W-103.75669

**COG, Loco Hills SWD Pipeline
U/L K, Section 34, T 17S, R32E
Groundwater: 50'-75'**





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 616454

Northing (Y): 3628606

Radius: 1700

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.

3/31/17 10:20 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER

Public Land Survey System (PLSS)

Q64:

Q16:

NE

Q4:

SW

Sec:

34

Tws:

17S

Rng:

32E

State Plane Coordinate System - NAD27

X:

0

ft

Y:

0

ft

Zone:

State Plane Coordinate System - NAD83

X:

0

ft

Y:

0

ft

Zone:

Degrees/Minutes/Seconds

Longitude (X):

Degrees:

0

°

Minutes:

0

'

Seconds:

0

"

Latitude (Y):

Degrees:

0

°

Minutes:

0

'

Seconds:

0

"

UTM - NAD27

Easting (X):

0

mtrs

Northing (Y):

0

mtrs

Zone:

SUBMIT

All Conversion Results are displayed as NAD 1983 UTM Zone 13

Easting (X):

616454.0

mtrs

Northing (Y):

3628606.0

mtrs

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

Laboratory Analytical Results Summary
Loco Hills SWD Pipeline

Analyte	Method	Sample Date	AH1 @ SURFACE	AH1 @ 1'	AH1 @ 2'	AH1 @ 3'	AH1 @ 4'	AH1 @ 5'
			11/16/16 mg/Kg	11/16/16 mg/Kg	11/16/16 mg/Kg	11/16/16 mg/Kg	11/16/16 mg/Kg	11/16/16 mg/Kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150	<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		544	880	1280	8260	22800	11900
GRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
DRO	TPH 8015M		107	142	<10.0	<10.0	<10.0	<10.0

Laboratory Analytical Results Summary

[illegible]

Laboratory Analytical Results Summary
Loco Hills SWD Pipeline

	Sample ID	SB1 @ 20'	SB1 @ 25'	SB1 @ 30'	SB1 @ 35'	SB1 @ 40'	SB1 @ 45'	SB1 @ 50'	SB1 @ 55'	SB1 @ 60'	SB1 @ 65'
Analyte	Method	Date	10/12/17	10/12/17	10/12/17	10/12/17	10/12/17	10/12/17	10/12/17	10/12/17	10/12/17
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Chloride	SM4500Cl-B		9060	6530	5920	3840	5200	9200	128	64	64

Laboratory Analytical Results Summary

Loco Hills SWD Pipeline

Cardinal points	Sample ID	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Analyte	Date	mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B	<0.050	<0.050	<0.050	<0.050
Toluene	BTEX 8021B	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B	<0.050	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B	<0.150	<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B	<0.300	<0.300	<0.300	<0.300
Chloride	SW4500Cl-B	112	112	112	144
GRO	TPH 8015M	<10.0	<10.0	<10.0	<10.0
DRO	TPH 8015M	<10.0	<10.0	<10.0	<10.0
EXT DRO	TPH 8015M	<10.0	<10.0	<10.0	<10.0

December 01, 2016

AARON LIEB

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: LOCO HILLS SWD MAINLINE

Enclosed are the results of analyses for samples received by the laboratory on 11/30/16 11:34.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/30/2016
Reported: 12/01/2016
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/16/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: AH 1 @ SURFACE (H602673-01)

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	11/30/2016	ND	2.10	105	2.00	1.81	
Toluene*	<0.050	0.050	11/30/2016	ND	2.16	108	2.00	1.71	
Ethylbenzene*	<0.050	0.050	11/30/2016	ND	2.12	106	2.00	1.69	
Total Xylenes*	<0.150	0.150	11/30/2016	ND	6.35	106	6.00	1.68	
Total BTEX	<0.300	0.300	11/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	544	16.0	12/01/2016	ND	400	100	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	11/30/2016	ND	190	95.1	200	6.67	
DRO >C10-C28	107	10.0	11/30/2016	ND	198	99.2	200	11.3	

Surrogate: 1-Chlorooctane 88.2 % 35-147

Surrogate: 1-Chlorooctadecane 86.1 % 28-171

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/30/2016
Reported: 12/01/2016
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/16/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: AH 1 @ 1' (H602673-02)

BTX 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	11/30/2016	ND	2.10	105	2.00	1.81	
Toluene*	<0.050	0.050	11/30/2016	ND	2.16	108	2.00	1.71	
Ethylbenzene*	<0.050	0.050	11/30/2016	ND	2.12	106	2.00	1.69	
Total Xylenes*	<0.150	0.150	11/30/2016	ND	6.35	106	6.00	1.68	
Total BTX	<0.300	0.300	11/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	880	16.0	12/01/2016	ND	400	100	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	11/30/2016	ND	190	95.1	200	6.67	
DRO >C10-C28	142	10.0	11/30/2016	ND	198	99.2	200	11.3	

Surrogate: 1-Chlorooctane 85.7 % 35-147

Surrogate: 1-Chlorooctadecane 90.0 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/30/2016
Reported: 12/01/2016
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/16/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: AH 1 @ 2' (H602673-03)

BTX 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	11/30/2016	ND	2.10	105	2.00	1.81	
Toluene*	<0.050	0.050	11/30/2016	ND	2.16	108	2.00	1.71	
Ethylbenzene*	<0.050	0.050	11/30/2016	ND	2.12	106	2.00	1.69	
Total Xylenes*	<0.150	0.150	11/30/2016	ND	6.35	106	6.00	1.68	
Total BTX	<0.300	0.300	11/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1280	16.0	12/01/2016	ND	400	100	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	11/30/2016	ND	190	95.1	200	6.67	
DRO >C10-C28	<10.0	10.0	11/30/2016	ND	198	99.2	200	11.3	

Surrogate: 1-Chlorooctane 91.5 % 35-147

Surrogate: 1-Chlorooctadecane 81.6 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/30/2016
Reported: 12/01/2016
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/16/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: AH 1 @ 3' (H602673-04)

BTX 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	11/30/2016	ND	2.10	105	2.00	1.81	
Toluene*	<0.050	0.050	11/30/2016	ND	2.16	108	2.00	1.71	
Ethylbenzene*	<0.050	0.050	11/30/2016	ND	2.12	106	2.00	1.69	
Total Xylenes*	<0.150	0.150	11/30/2016	ND	6.35	106	6.00	1.68	
Total BTX	<0.300	0.300	11/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	8260	16.0	12/01/2016	ND	400	100	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	11/30/2016	ND	190	95.1	200	6.67	
DRO >C10-C28	<10.0	10.0	11/30/2016	ND	198	99.2	200	11.3	

Surrogate: 1-Chlorooctane 88.1 % 35-147

Surrogate: 1-Chlorooctadecane 74.5 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/30/2016
Reported: 12/01/2016
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/16/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: AH 1 @ 4' (H602673-05)

BTX 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	11/30/2016	ND	2.10	105	2.00	1.81	
Toluene*	<0.050	0.050	11/30/2016	ND	2.16	108	2.00	1.71	
Ethylbenzene*	<0.050	0.050	11/30/2016	ND	2.12	106	2.00	1.69	
Total Xylenes*	<0.150	0.150	11/30/2016	ND	6.35	106	6.00	1.68	
Total BTX	<0.300	0.300	11/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	22800	16.0	12/01/2016	ND	400	100	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	11/30/2016	ND	190	95.1	200	6.67	
DRO >C10-C28	<10.0	10.0	11/30/2016	ND	198	99.2	200	11.3	

Surrogate: 1-Chlorooctane 92.8 % 35-147

Surrogate: 1-Chlorooctadecane 72.0 % 28-171

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/30/2016
Reported: 12/01/2016
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/16/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: AH 1 @ 5' (H602673-06)

BTX 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	11/30/2016	ND	2.10	105	2.00	1.81	
Toluene*	<0.050	0.050	11/30/2016	ND	2.16	108	2.00	1.71	
Ethylbenzene*	<0.050	0.050	11/30/2016	ND	2.12	106	2.00	1.69	
Total Xylenes*	<0.150	0.150	11/30/2016	ND	6.35	106	6.00	1.68	
Total BTX	<0.300	0.300	11/30/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11900	16.0	12/01/2016	ND	400	100	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	11/30/2016	ND	190	95.1	200	6.67	
DRO >C10-C28	<10.0	10.0	11/30/2016	ND	198	99.2	200	11.3	

Surrogate: 1-Chlorooctane 93.9 % 35-147

Surrogate: 1-Chlorooctadecane 82.6 % 28-171

Cardinal Laboratories

*=Accredited Analyte

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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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: COG Operating LLC

Project Manager: Aaron Lieb

Address: 2407 Pecos Avenue

City: Artesia

State: NM

Zip: 88210

Phone #: 575-748-1553

Fax #:

Project #:

Project Owner:

Project Name: Loco Hills SWD Main Line

Project Location:

Sampler Name: Aaron Lieb

P.O. #:

Company: COG Operating LLC

Attn: Robert McNeill

Address: 600 W Illinois

City: Midland

State: TX

Zip: 79701

Phone #: (432) 221-0388

Fax #:

BILL TO

ANALYSIS REQUEST

FOR LAB USE ONLY		PRESERV.		SAMPLING		ANALYSIS REQUEST													
Matrix		ACID/BASE:		DATE		TIME													
GROUNDWATER		ICE / COOL		11/16/16		2:30 PM		BTEX		TPH		Chloride							
WASTEWATER		OTHER :		11/16/16		2:30 PM													
SOIL				11/16/16		2:30 PM													
OIL				11/16/16		2:30 PM													
SLUDGE				11/16/16		2:30 PM													
OTHER :				11/16/16		2:30 PM													
AH1 @ surface		X		11/16/16		2:30 PM		X		X		X							
AH1 @ 1'		X		11/16/16		2:30 PM		X		X		X							
AH1 @ 2'		X		11/16/16		2:30 PM		X		X		X							
AH1 @ 3'		X		11/16/16		2:30 PM		X		X		X							
AH1 @ 4'		X		11/16/16		2:30 PM		X		X		X							
AH1 @ 5'		X		11/16/16		2:30 PM		X		X		X							

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Relinquished By:

Date: 11-30-16

Received By:

Time: 11:34 AM

Signature: [Handwritten]

Relinquished By:

Date:

Received By:

Time:

Signature: [Handwritten]

Delivered By: (Circle One)

Sampler - UPS - Bus - Other: #75

5.20

5.20

Sample Condition

Cool ☒ Intact ☒

Yes ☒ No ☐

Checked By: [Handwritten]

Initials: [Handwritten]

Remarks:

Phone Result: ☐ Yes ☐ No

Fax Result: ☐ Yes ☐ No

Add'l Phone #:

Add'l Fax #:

Remarks:

Remarks:

Remarks:

Remarks:

Remarks:

January 05, 2017

DAKOTA NEEL

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: LOCO HILLS SWD MAINLINE

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

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

 Received: 12/29/2016
 Reported: 01/05/2017
 Project Name: LOCO HILLS SWD MAINLINE
 Project Number: NONE GIVEN
 Project Location: NOT GIVEN

 Sampling Date: 12/21/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Angela Cabrera

Sample ID: T1 - SURFACE (H602892-01)

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

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1340	16.0	01/03/2017	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/30/2016	ND	184	92.0	200	3.90	
DRO >C10-C28	460	10.0	12/30/2016	ND	190	95.0	200	1.29	

Surrogate: 1-Chlorooctane 103 % 35-147

Surrogate: 1-Chlorooctadecane 124 % 28-171

Sample ID: T1 - 1' (H602892-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	960	16.0	01/03/2017	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/29/2016
Reported: 01/05/2017
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 12/21/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: T1 - 2' (H602892-03)

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	01/03/2017	ND	400	100	400	0.00	

Sample ID: T1 - 3' (H602892-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	13600	16.0	01/03/2017	ND	400	100	400	0.00	QM-07	

Sample ID: T1 - 4' (H602892-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	14000	16.0	01/03/2017	ND	400	100	400	0.00		

Sample ID: T1 - 5' (H602892-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12000	16.0	01/03/2017	ND	400	100	400	0.00	

Sample ID: T1 - 6' (H602892-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10400	16.0	01/03/2017	ND	400	100	400	0.00	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/29/2016
Reported: 01/05/2017
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVEN

Sampling Date: 12/21/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera

Sample ID: T1 - 7' (H602892-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	9060	16.0	01/03/2017	ND	400	100	400	0.00		

Sample ID: T1 - 8' (H602892-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12100	16.0	01/03/2017	ND	400	100	400	0.00	

Sample ID: T1 - 10' (H602892-10)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12400	16.0	01/03/2017	ND	400	100	400	0.00	

Sample ID: T1 - 12' (H602892-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12500	16.0	01/03/2017	ND	400	100	400	0.00	

Sample ID: T1 - 14' (H602892-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9860	16.0	01/03/2017	ND	400	100	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
DAKOTA NEEL
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONEReceived: 12/29/2016
Reported: 01/05/2017
Project Name: LOCO HILLS SWD MAINLINE
Project Number: NONE GIVEN
Project Location: NOT GIVENSampling Date: 12/21/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Angela Cabrera**Sample ID: T1 - 16' (H602892-13)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11200	16.0	01/03/2017	ND	400	100	400	0.00	

Sample ID: T1 - 18' (H602892-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11600	16.0	01/03/2017	ND	400	100	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

10F2

BILL TO

ANALYSIS REQUEST

Company Name:	COG Operating LLC	P.O. #:	
Project Manager:	Dakota Neel	Company:	COG Operating LLC
Address:	2208 West Main	Attn:	Robert McNeill
City:	Artesia	State:	NM
Phone #:	432-215-2783	Fax #:	600 W Illinois
Project #:		City:	Midland
Project Name:	LOCO HILLS SWD MAINLINE	State:	TX
Project Location:		Zip:	79701
Sample Name:	Dakota Neel & Aaron Lieb	Phone #:	(432) 221-0388
		Fax #:	

Sample Name:	Dakota Neel & Aaron Lieb																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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H002892	T1 - SURFACE	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX	TPH	Chloride																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date:	Received By:	Date:
	12-21-16		12-21-16
	Time:		Time:
	12:05		12:05
	Date:		Date:
	Time:		Time:

Delivered By: (Circle One)	Sample Condition	CHECKED BY:
UPS	<input checked="" type="checkbox"/> Intact	(Initials)
Bus	<input type="checkbox"/> Cool	
Other	<input type="checkbox"/> Yes	
	<input type="checkbox"/> No	

Phone Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Phone #:
Fax Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Fax #:
REMARKS:			
Please only run deeper horizons for BTEX AND TPH if Benzene exceeds 10ppm, BTEX exceeds 50ppm, and TPH exceeds 5000ppm.			



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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2012

Company Name: COG Operating LLC

Project Manager: Dakota Neel

Address: 2208 West Main

City: Artesia

Phone #: 432-215-2783

Project #:

Project Name: LOCO HILLS SWD MAINLINE

Project Location:

Sampler Name: Dakota Neel & Aaron Lieb

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

110612892
11
12
13
14

T1 - 12'
T1 - 14'
T1 - 16'
T1 - 18'

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

BTEX

TPH

Chloride

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

BILL TO

ANALYSIS REQUEST

P.O. #:

Company: COG Operating LLC

Attn: Robert McNeill

Address: 600 W Illinois

City: Midland

State: TX Zip: 79701

Phone #: (432) 221-0388

Fax #:

PRESERV.

SAMPLING

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

#75 5.122

Sample Condition
Cool ☒ Intact ☒
Yes ☒ No ☒

CHECKED BY:
(Initials)

Phone Result: ☐ Yes ☐ No

Fax Result: ☐ Yes ☐ No

REMARKS:

dn22@concho.com

rgarubs@concho.com

dn22@concho.com

rgarubs@concho.com

dn22@concho.com

rgarubs@concho.com

dn22@concho.com

rgarubs@concho.com

dn22@concho.com

rgarubs@concho.com

5. Please fax written changes to 575-393-2476

October 19, 2017

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: LOCO HILLS SWD PIPELINE

Enclosed are the results of analyses for samples received by the laboratory on 10/13/17 13:33.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



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:	10/13/2017	Sampling Date:	10/12/2017
Reported:	10/19/2017	Sampling Type:	Soil
Project Name:	LOCO HILLS SWD PIPELINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: SB1 @ 20 (H702779-01)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9060	16.0	10/17/2017	ND	432	108	400	0.00	

Sample ID: SB1 @ 25 (H702779-02)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6530	16.0	10/17/2017	ND	432	108	400	0.00	

Sample ID: SB1 @ 30 (H702779-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5920	16.0	10/17/2017	ND	432	108	400	0.00	

Sample ID: SB1 @ 35 (H702779-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1390	16.0	10/17/2017	ND	432	108	400	0.00	

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:	10/13/2017	Sampling Date:	10/12/2017
Reported:	10/19/2017	Sampling Type:	Soil
Project Name:	LOCO HILLS SWD PIPELINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: SB1 @ 40 (H702779-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3840	16.0	10/17/2017	ND	432	108	400	0.00	

Sample ID: SB1 @ 45 (H702779-06)

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	10/17/2017	ND	416	104	400	3.77	QM-07	

Sample ID: SB1 @ 50 (H702779-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9200	16.0	10/17/2017	ND	416	104	400	3.77	

Sample ID: SB1 @ 55 (H702779-08)

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	10/17/2017	ND	416	104	400	3.77	

Sample ID: SB1 @ 60 (H702779-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	10/17/2017	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:	10/13/2017	Sampling Date:	10/12/2017
Reported:	10/19/2017	Sampling Type:	Soil
Project Name:	LOCO HILLS SWD PIPELINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: SB1 @ 65 (H702779-10)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	10/17/2017	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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



Source: BBC International, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

SCHOOLS OR OTHERS:			
Phone Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Phone #:
Fax Result:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Add'l Fax #:
REMARKS:			

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

#75 corrected to $+0.25^{\circ}\text{C}$

October 30, 2017

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: LOCO HILLS SWD PIPELINE

Enclosed are the results of analyses for samples received by the laboratory on 10/23/17 15:56.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



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:	10/23/2017	Sampling Date:	10/23/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	LOCO HILLS SWD PIPELINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	529 - MALJAMAR		

Sample ID: NORTH @ SURFACE (H702900-01)

BTX 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	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 60.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 67.1 % 34.7-157

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:	10/23/2017	Sampling Date:	10/23/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	LOCO HILLS SWD PIPELINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	529 - MALJAMAR		

Sample ID: EAST @ SURFACE (H702900-02)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319	
Total BTEX	<0.300	0.300	10/27/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 66.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 74.2 % 34.7-157

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:	10/23/2017	Sampling Date:	10/23/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	LOCO HILLS SWD PIPELINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	529 - MALJAMAR		

Sample ID: WEST @ SURFACE (H702900-03)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/27/2017	ND	1.72	86.1	2.00	0.774		
Toluene*	<0.050	0.050	10/27/2017	ND	1.72	85.8	2.00	0.184		
Ethylbenzene*	<0.050	0.050	10/27/2017	ND	1.72	86.2	2.00	0.0198		
Total Xylenes*	<0.150	0.150	10/27/2017	ND	5.15	85.8	6.00	0.319		
Total BTEX	<0.300	0.300	10/27/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.0 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 62.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 65.5 % 34.7-157

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:	10/23/2017	Sampling Date:	10/23/2017
Reported:	10/30/2017	Sampling Type:	Soil
Project Name:	LOCO HILLS SWD PIPELINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	529 - MALJAMAR		

Sample ID: SOUTH @ SURFACE (H702900-04)

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	10/28/2017	ND	1.72	86.1	2.00	0.774	
Toluene*	<0.050	0.050	10/28/2017	ND	1.72	85.8	2.00	0.184	
Ethylbenzene*	<0.050	0.050	10/28/2017	ND	1.72	86.2	2.00	0.0198	
Total Xylenes*	<0.150	0.150	10/28/2017	ND	5.15	85.8	6.00	0.319	
Total BTEx	<0.300	0.300	10/28/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	10/26/2017	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	10/26/2017	ND	157	78.6	200	6.02	
DRO >C10-C28	<10.0	10.0	10/26/2017	ND	171	85.6	200	7.78	
EXT DRO >C28-C36	<10.0	10.0	10/26/2017	ND					

Surrogate: 1-Chlorooctane 77.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 82.4 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



Source: BBC International, Inc.

ANALYSIS REQUEST

9.

TPH Extended
BTX
c/-



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

Cliff Brunson

From: Rebecca Haskell <RHaskell@concho.com>
Sent: Thursday, November 16, 2017 11:27 AM
To: Cliff Brunson (cbrunson@bbcinternational.com)
Subject: FW: [External] Re: (C-141 Initial) Loco Hills SWD Pipeline

Becky Haskell
Senior HSE Coordinator
COG Operating LLC
600 W Illinois Avenue | Midland, TX 79701
Direct: 432-818-2372 | Main: 432.683.7443
Cell: 432-556-5130
rhaskell@concho.com



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From: Oberding, Tomas, EMNRD [<mailto:Tomas.Oberding@state.nm.us>]
Sent: Thursday, February 23, 2017 9:59 AM
To: Rebecca Haskell; Yu, Olivia, EMNRD
Cc: Robert McNeill; Dakota Neel
Subject: RE: [External] Re: (C-141 Initial) Loco Hills SWD Pipeline

Ms Haskell,

Thank you for the information. The OCD confirms it has no record of this at this time. We will process it and move forward.

-Dr. Oberding

Tomás 'Doc' Oberding PhD
Hydrologist, Adv-District 1
Oil Conservation Division, EMNRD
(505) 476-3403
E-Mail: tomas.oberding@state.nm.us

一期一会

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Rebecca Haskell [<mailto:RHaskell@concho.com>]
Sent: Thursday, February 23, 2017 7:41 AM

To: Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>; Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Robert McNeill <RMcNeill@concho.com>; Dakota Neel <DNeel2@concho.com>
Subject: FW: [External] Re: (C-141 Initial) Loco Hills SWD Pipeline

Mr. Oberding,

As per your email yesterday stating no information was in the system for the Loco Hills SWD Pipeline release. Please see below for the initial submittal of the Initial C-141 which was submitted on October 28, 2016, and the attached Initial C-141 for your records.

Thank You,

Becky Haskell
Senior HSE Coordinator
COG Operating LLC
600 W Illinois Avenue | Midland, TX 79701
Direct: 432-818-2372 | Main: 432.683.7443
Cell: 432-556-5130
rhaskell@concho.com



From: Tucker, Shelly [<mailto:stucker@blm.gov>]
Sent: Wednesday, November 02, 2016 12:04 PM
To: Dakota Neel; Arias, Arthur
Cc: Lynch, Kristen, EMNRD; Tomáš 'Doc' Oberding PhD (tomas.oberding@state.nm.us); Robert McNeill; James_Amos@blm.gov
Subject: [External] Re: (C-141 Initial) Loco Hills SWD Pipeline

**** External email. Use caution. ****

Thank you for the notification. Art Arias will be the Authorized Officer for this release.

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

Sincerely,

Shelly J Tucker

Environmental Protection Specialist
O&G Spill/Release Coordinator

Bureau of Land Management
620 E. Greene St
Carlsbad, NM 88220

575.234.5905 - Direct
575.361.0084 - Cellular
575.234.6235 - Emergency Spill Number

stucker@blm.gov

The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not revegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

Confidentiality Warning: This message along with any attachments are intended only for use of the individual or entity to which it is addressed and may contain information that is privileged or confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient or the employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately.

On Fri, Oct 28, 2016 at 2:20 PM, Dakota Neel <DNeel2@concho.com> wrote:

Ms. Lynch/Ms. Tucker,

Attached is a C-141 for your consideration. If you have any additional questions please feel free to contact me.

Thank you,

Dakota Neel

HSE Coordinator

COG Operating LLC

Cell: 432-215-2783

dneel2@concho.com

2407 Pecos Ave.

Artesia , NM 88210



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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC	Contact: Robert McNeill	
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077	
Facility Name: Loco Hills SWD Pipeline	Facility Type: SWD system	
Surface Owner: Federal	Mineral Owner:	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	34	17S	32E	1650	South	2310	West	Lea

32.790375, -103.757048

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 5 bbls of PW	Volume Recovered: 0 bbls of PW
Source of Release: Flowline	Date and Hour of Occurrence: 10/21/2016 unknown	Date and Hour of Discovery: 10/21/2016 1:00 PM
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*


Describe Cause of Problem and Remedial Action Taken.*

The release was caused by a hole in the poly flowline. The line was isolated and the damaged portion of the flowline was removed and the line was fused back together.

Describe Area Affected and Cleanup Action Taken.*

This release occurred on the pipeline ROW and light mist impacted a small portion of the pasture adjacent to the ROW. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

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

Signature: 	OIL CONSERVATION DIVISION		
Printed Name: Dakota Neel	Approved by Environmental Specialist:		
Title: Environmental Coordinator	Approval Date:	Expiration Date:	
E-mail Address: dneel2@concho.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 10/28/2016	Phone: 575-748-6933		

* Attach Additional Sheets If Necessary