



APPROVED

By Olivia Yu at 1:15 pm, Dec 04, 2017

PHONE (575) 397-6388 • FAX (575) 397- 0397 • 1324 W. MARLAND • P.O. BOX 805 • HOBBS, NM 88241-0805
E-MAIL: cbrunson@bbcinternational.com

DELINEATION WORKPLAN

COG – Lusk Deep Unit A #023H

(Leak Date: 6/10/16)

NMOCD approves of the delineation completed for 1RP-4657 and the proposed remediation.

RP # 1RP-4657

This delineation workplan and remediation proposal addresses the release at the Lusk Deep Unit A #023H.

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 will be excavated to a depth of 5 feet. The leak area near SP2 and SP3 will be excavated to a depth of 2 feet. The leak area near SP4 will be excavated to a depth of 5 feet and the area near SP5 will be excavated to a depth of 4 feet.

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.

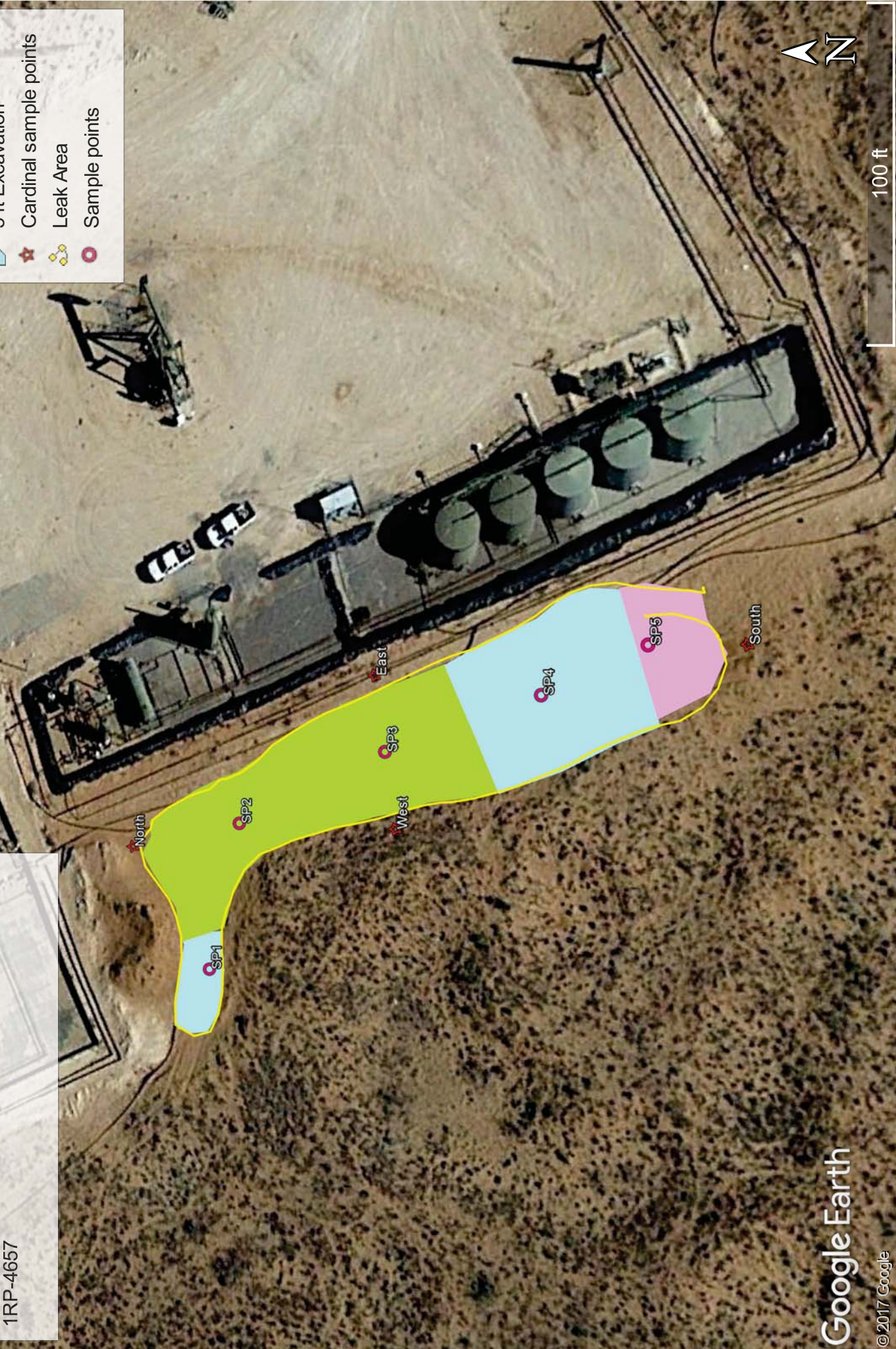
All excavated materials will be disposed of at an NMOCD-approved disposal facility.

COG, Lusk Deep Unit A #023H

Leak date: 06/10/2016
Lea County, NM
API# 30-025-40260
1RP-4657

Legend

- 2 ft Excavation
- 4 ft Excavation
- 5 ft Excavation
- Cardinal sample points
- Leak Area
- Sample points



COG, Lusk Deep Unit A #023H

Samples, Hand Auger:

SP1, GPS point: N 32.63955° W-103.79891°

SP2, GPS point: N 32.63952° W-103.79875°

SP3, GPS point: N 32.63938° W-103.79867°

SP4, GPS point: N 32.63924° W-103.79861°

SP5, GPS point: N 32.63915° W-103.79856°

Samples, Hand Auger:

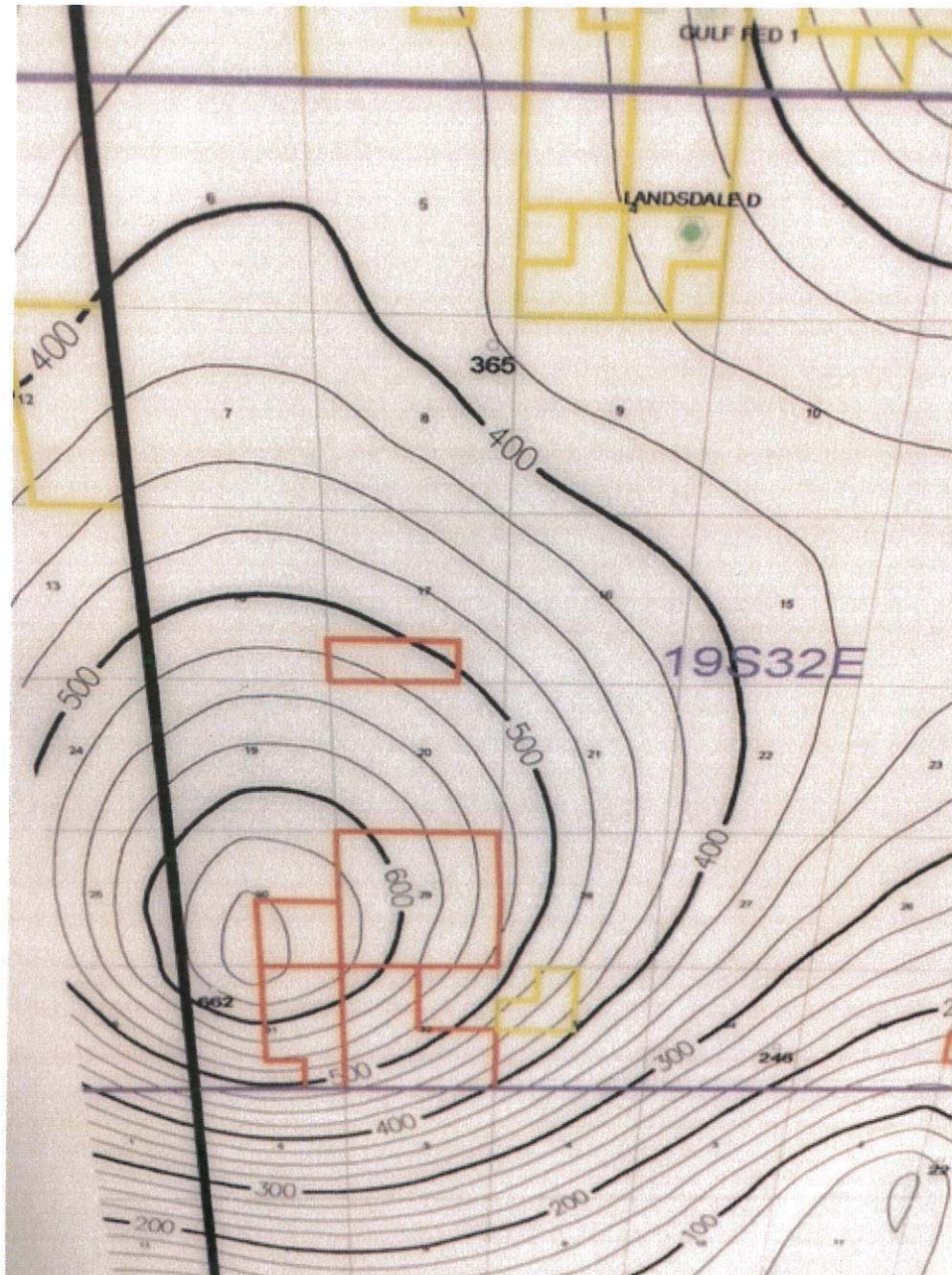
North Sample, GPS point: N 32.63963° W-103.79878°

South Sample GPS point: N 32.63907° W-103.79856°

East Sample, GPS point: N 32.63939° W-103.79859°

West Sample, GPS point: N 32.63937° W-103.79875°

COG, Lusk Deep Unit A #023H
U/L P, Section 19, T19S, R32E
Groundwater: 600'





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

(R=POD has been replaced,

O=orphaned,

C=the file is closed)

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

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

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
CP 00639 POD1		CP	LE	3	1	20	19S	32E		613029	3612880*	897	350	345	5
CP 00640 POD1		CP	LE	2	2	19	19S	32E		612621	3613280*	1207	260	102	158
CP 00563 POD1		CP	LE	1	1	2	19S	32E		612118	3613376*	1402	300		
CP 00642 POD1		CP	ED	2	2	25	19S	31E		611025	3611657*	1664	250		

Average Depth to Water: **223 feet**

Minimum Depth: **102 feet**

Maximum Depth: **345 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 612637

Northing (Y): 3612073

Radius: 1700

*UTM location was derived from PLSS - see Help

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.

2/27/17 11:16 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. ~~



Groundwater Plot

COG Lusk Deep Unit A #023H

County
Lea

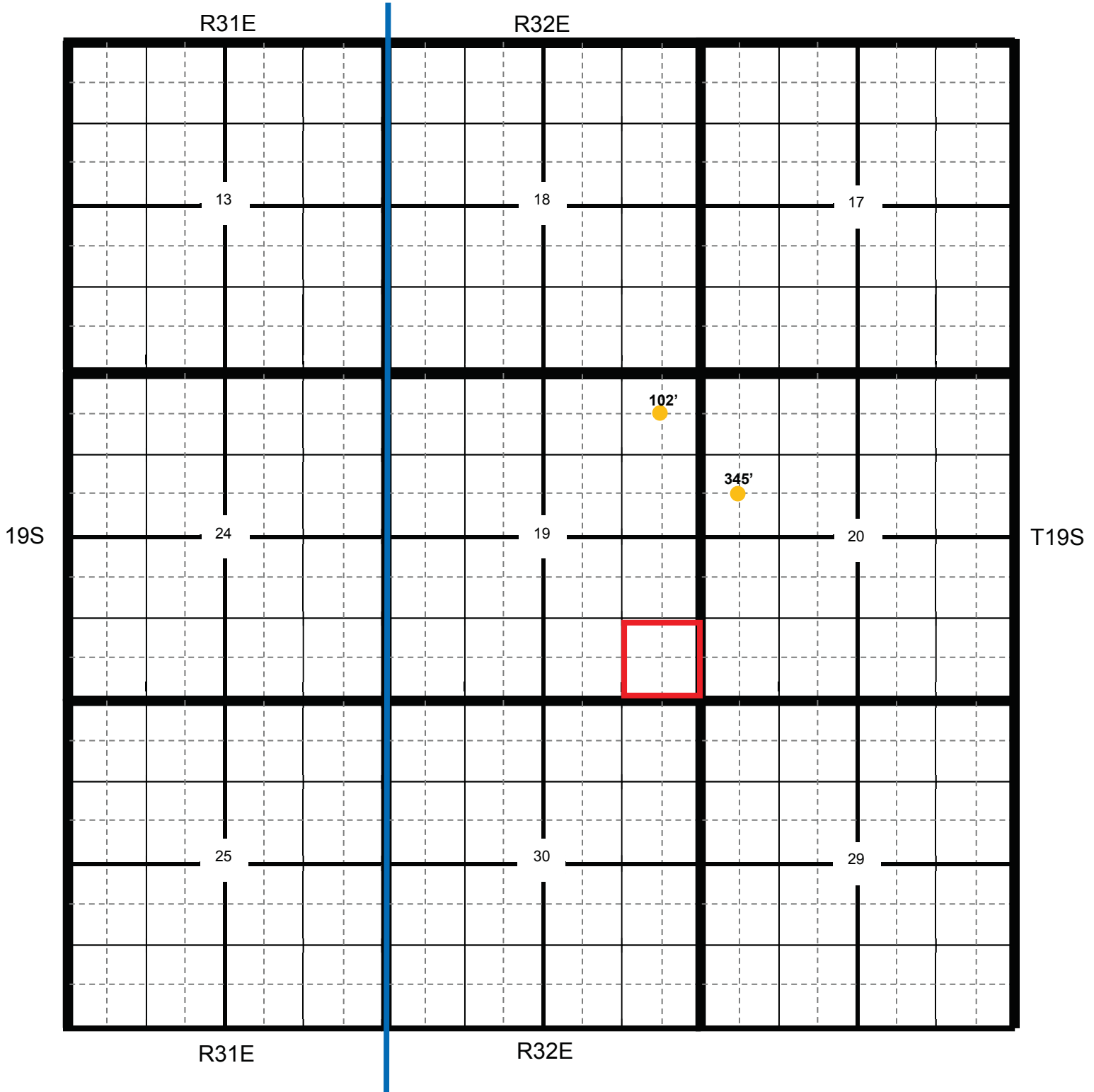
Unit Letter
P

Section
19

Township
19S

Range
32E

Trend Map 600'



★ Location

● OCD

● USGS

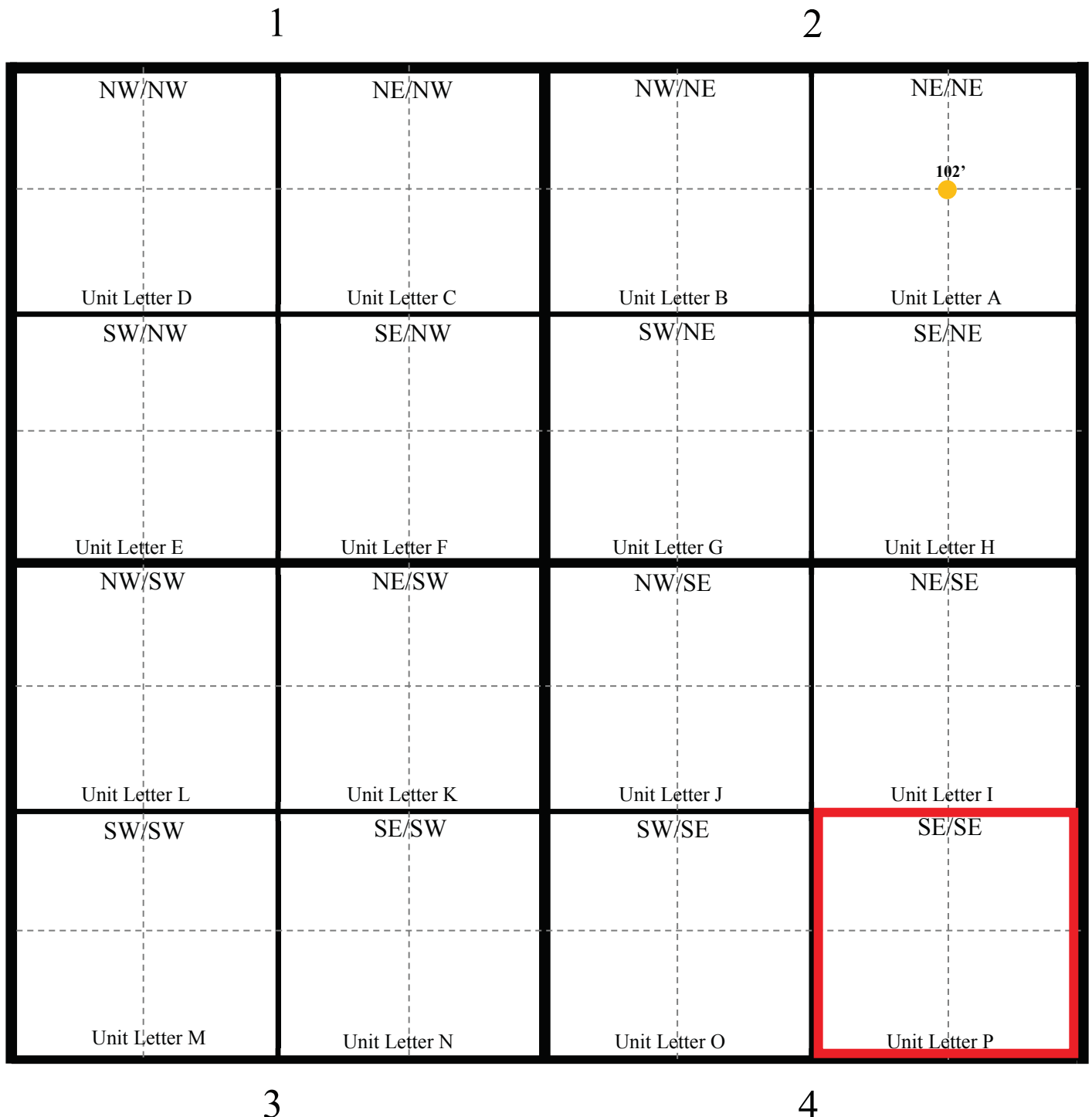
● SEO

● All Databases

COG Lusk Deep Unit A #023H

County	Unit Letter	Section	Township	Range
Lea	P	19	19S	32E

Trend Map 600'



Laboratory Analytical Results Summary
Lusk Deep Unit A #23

Analyte	Sample		SP1 @ 1'	SP1 @ 2'	SP1 @ 3'	SP1 @ 4'	SP1 @ 5'	SP1 @ 6'	SP1 @ 10'
	Method	Date	mg/Kg 7/14/16	mg/Kg 7/14/16	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		432	2160	2720	1560	240	128	192
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M			72.2	n/a	n/a	n/a	n/a	n/a

Analyte	Sample		SP2 @ 1'	SP2 @ 2'	SP2 @ 3'	SP2 @ 8'
	Method	Date	mg/Kg 7/14/16	mg/Kg 7/14/16	mg/Kg 10/13/17	mg/Kg 10/13/17
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a
Chloride	SM4500Cl-B		3080	272	32	160
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a

Analyte	Sample		SP3 @ 1'	SP3 @ 2'	SP3 @ 3'	SP3 @ 7'
	Method	Date	mg/Kg 7/14/16	mg/Kg 7/14/16	mg/Kg 7/14/16	mg/Kg 10/13/17
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	n/a
Toluene	BTEX 8021B		<0.050	<0.050	<0.050	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	n/a
Chloride	SM4500Cl-B		1360	112	32	176
GRO	TPH 8015M		<10.0	<10.0	<10.0	n/a
DRO	TPH 8015M		<10.0	<10.0	<10.0	n/a

Analyte	Sample		SP4 @ 1'	SP4 @ 2'	SP4 @ 3'	SP4 @ 4'	SP4 @ 5'	SP4 @ 6'	SP4 @ 10'
	Method	Date	mg/Kg 7/14/16	mg/Kg 7/14/16	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		2920	2920	3120	1280	224	192	176
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

Analyte	Sample		SP5 @ 1'	SP5 @ 2'	SP5 @ 3'	SP5 @ 4'	SP5 @ 5'	SP5 @ 6'	SP5 @ 9'
	Method	Date	mg/Kg 7/14/16	mg/Kg 7/14/16	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17	mg/Kg 10/13/17
Benzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Toluene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Ethylbenzene	BTEX 8021B		<0.050	<0.050	n/a	n/a	n/a	n/a	n/a
Total Xylenes	BTEX 8021B		<0.150	<0.150	n/a	n/a	n/a	n/a	n/a
Total BTEX	BTEX 8021B		<0.300	<0.300	n/a	n/a	n/a	n/a	n/a
Chloride	SM4500Cl-B		10000	1520	832	208	240	192	176
GRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a
DRO	TPH 8015M		<10.0	<10.0	n/a	n/a	n/a	n/a	n/a

Analyte	Sample		NORTH @ 1'
	Method	Date	mg/Kg 10/13/17
Chloride	SM4500Cl-B		<16.0

Analyte	Sample		EAST @ 1'
	Method	Date	mg/Kg 10/13/17
Chloride	SM4500Cl-B		32

Analyte	Sample		WEST @ 1'
	Method	Date	mg/Kg 10/13/17
Chloride	SM4500Cl-B		16

Analyte	Sample		SOUTH @ 1'
	Method	Date	mg/Kg 10/13/17
Chloride	SM4500Cl-B		16

July 20, 2016

AMANDA TRUJILLO
COG Operating, LLC
500 W. ILLINOIS
Midland, TX 79701

RE: LUSK DEEP UNIT A #23

Enclosed are the results of analyses for samples received by the laboratory on 07/14/16 12:00.

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, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S1-1' (H601585-01)

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	07/15/2016	ND	1.86	93.2	2.00	1.20	
Toluene*	<0.050	0.050	07/15/2016	ND	2.08	104	2.00	1.83	
Ethylbenzene*	<0.050	0.050	07/15/2016	ND	2.06	103	2.00	2.00	
Total Xylenes*	<0.150	0.150	07/15/2016	ND	6.25	104	6.00	1.71	
Total BTX	<0.300	0.300	07/15/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 86.4 % 35-147

Surrogate: 1-Chlorooctadecane 90.4 % 28-171

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S1-2' (H601585-02)

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	07/15/2016	ND	1.86	93.2	2.00	1.20	
Toluene*	<0.050	0.050	07/15/2016	ND	2.08	104	2.00	1.83	
Ethylbenzene*	<0.050	0.050	07/15/2016	ND	2.06	103	2.00	2.00	
Total Xylenes*	<0.150	0.150	07/15/2016	ND	6.25	104	6.00	1.71	
Total BTX	<0.300	0.300	07/15/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2160	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	72.2	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 88.2 % 35-147

Surrogate: 1-Chlorooctadecane 93.8 % 28-171

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S2-1' (H601585-03)

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	07/15/2016	ND	1.86	93.2	2.00	1.20		
Toluene*	<0.050	0.050	07/15/2016	ND	2.08	104	2.00	1.83		
Ethylbenzene*	<0.050	0.050	07/15/2016	ND	2.06	103	2.00	2.00		
Total Xylenes*	<0.150	0.150	07/15/2016	ND	6.25	104	6.00	1.71		
Total BTEx	<0.300	0.300	07/15/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3080	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 80.3 % 35-147

Surrogate: 1-Chlorooctadecane 83.7 % 28-171

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S2-2' (H601585-04)

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	07/15/2016	ND	1.86	93.2	2.00	1.20		
Toluene*	<0.050	0.050	07/15/2016	ND	2.08	104	2.00	1.83		
Ethylbenzene*	<0.050	0.050	07/15/2016	ND	2.06	103	2.00	2.00		
Total Xylenes*	<0.150	0.150	07/15/2016	ND	6.25	104	6.00	1.71		
Total BTEx	<0.300	0.300	07/15/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 69.4 % 35-147

Surrogate: 1-Chlorooctadecane 72.2 % 28-171

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S3-1' (H601585-05)

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	07/15/2016	ND	1.86	93.2	2.00	1.20	
Toluene*	<0.050	0.050	07/15/2016	ND	2.08	104	2.00	1.83	
Ethylbenzene*	<0.050	0.050	07/15/2016	ND	2.06	103	2.00	2.00	
Total Xylenes*	<0.150	0.150	07/15/2016	ND	6.25	104	6.00	1.71	
Total BTX	<0.300	0.300	07/15/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1360	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 66.3 % 35-147

Surrogate: 1-Chlorooctadecane 67.2 % 28-171

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S3-2' (H601585-06)

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	07/15/2016	ND	1.86	93.2	2.00	1.20	
Toluene*	<0.050	0.050	07/15/2016	ND	2.08	104	2.00	1.83	
Ethylbenzene*	<0.050	0.050	07/15/2016	ND	2.06	103	2.00	2.00	
Total Xylenes*	<0.150	0.150	07/15/2016	ND	6.25	104	6.00	1.71	
Total BTX	<0.300	0.300	07/15/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 66.3 % 35-147

Surrogate: 1-Chlorooctadecane 63.4 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S3-3' (H601585-07)

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	07/15/2016	ND	1.86	93.2	2.00	1.20		
Toluene*	<0.050	0.050	07/15/2016	ND	2.08	104	2.00	1.83		
Ethylbenzene*	<0.050	0.050	07/15/2016	ND	2.06	103	2.00	2.00		
Total Xylenes*	<0.150	0.150	07/15/2016	ND	6.25	104	6.00	1.71		
Total BTEx	<0.300	0.300	07/15/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 72.5 % 35-147

Surrogate: 1-Chlorooctadecane 73.7 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S4-1' (H601585-08)

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	07/18/2016	ND	2.13	107	2.00	0.111	
Toluene*	<0.050	0.050	07/18/2016	ND	2.18	109	2.00	0.365	
Ethylbenzene*	<0.050	0.050	07/18/2016	ND	2.10	105	2.00	0.234	
Total Xylenes*	<0.150	0.150	07/18/2016	ND	6.33	106	6.00	0.107	
Total BTEx	<0.300	0.300	07/18/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2920	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 75.7 % 35-147

Surrogate: 1-Chlorooctadecane 79.3 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S4-2' (H601585-09)

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	07/18/2016	ND	2.13	107	2.00	0.111	
Toluene*	<0.050	0.050	07/18/2016	ND	2.18	109	2.00	0.365	
Ethylbenzene*	<0.050	0.050	07/18/2016	ND	2.10	105	2.00	0.234	
Total Xylenes*	<0.150	0.150	07/18/2016	ND	6.33	106	6.00	0.107	
Total BTX	<0.300	0.300	07/18/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2920	16.0	07/18/2016	ND	416	104	400	0.00	QM-07	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/15/2016	ND	182	91.0	200	2.49	
DRO >C10-C28	<10.0	10.0	07/15/2016	ND	194	97.0	200	3.69	

Surrogate: 1-Chlorooctane 74.7 % 35-147

Surrogate: 1-Chlorooctadecane 77.1 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S5-1' (H601585-10)

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	07/18/2016	ND	2.13	107	2.00	0.111	
Toluene*	<0.050	0.050	07/18/2016	ND	2.18	109	2.00	0.365	
Ethylbenzene*	<0.050	0.050	07/18/2016	ND	2.10	105	2.00	0.234	
Total Xylenes*	<0.150	0.150	07/18/2016	ND	6.33	106	6.00	0.107	
Total BTX	<0.300	0.300	07/18/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10000	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/18/2016	ND	173	86.5	200	1.10	
DRO >C10-C28	<10.0	10.0	07/18/2016	ND	180	90.2	200	3.58	

Surrogate: 1-Chlorooctane 75.2 % 35-147

Surrogate: 1-Chlorooctadecane 84.0 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

COG Operating, LLC
AMANDA TRUJILLO
500 W. ILLINOIS
Midland TX, 79701
Fax To: None

Received: 07/14/2016
Reported: 07/20/2016
Project Name: LUSK DEEP UNIT A #23
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 07/14/2016
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Jodi Henson

Sample ID: S5-2' (H601585-11)

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	07/18/2016	ND	2.13	107	2.00	0.111	
Toluene*	<0.050	0.050	07/18/2016	ND	2.18	109	2.00	0.365	
Ethylbenzene*	<0.050	0.050	07/18/2016	ND	2.10	105	2.00	0.234	
Total Xylenes*	<0.150	0.150	07/18/2016	ND	6.33	106	6.00	0.107	
Total BTEx	<0.300	0.300	07/18/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1520	16.0	07/18/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/18/2016	ND	173	86.5	200	1.10	
DRO >C10-C28	<10.0	10.0	07/18/2016	ND	180	90.2	200	3.58	

Surrogate: 1-Chlorooctane 73.4 % 35-147

Surrogate: 1-Chlorooctadecane 81.2 % 28-171

Cardinal Laboratories

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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

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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 LLC		P.O. #:																	
Project Manager: Ananda Trujillo Davis		Company: COG																	
Address:		Attn: Robert Grubbs																	
City:		Address:																	
State:		City:																	
Zip:		State:																	
Phone #:		Zip:																	
Fax #:		Phone #:																	
Project #:		Fax #:																	
Project Name: Lusk Deep Unit A #23																			
Project Location:																			
Sampler Name: A. Davis																			
FOR LAB USE ONLY																			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH	BTex	C-		
H001585	51-1'												7/14/16	10:00 AM					
-1	51-1'																		
-2	51-1'																		
-3	51-1'																		
-4	51-1'																		
-5	51-1'																		
-6	51-1'																		
-7	51-1'																		
-8	51-1'																		
-9	51-1'																		
Relinquished By: A. Davis		Date: 7/14/16		Time: 12:00		Received By: Ananda Trujillo Davis		Date: 7/14/16		Time: 12:00		Sample Condition		Cool		Intact		Checked By: AE#75	
Delivered By: (Circle One)		Sample Condition		Cool		Intact		Checked By: AE#75		REMARKS:		First pulled sample and came directly to lab.							
Sampler - UPS - Bus - Other:		Sample Condition		Cool		Intact		Checked By: AE#75		REMARKS:									

* Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:		P.O. #:		BILL TO												ANALYSIS REQUEST																															
Project Manager:		Company:																																													
Address:		Attn:																																													
City:		Address:																																													
State:		City:																																													
Zip:		State:																																													
Phone #:		Fax #:																																													
Project #:		Project Owner:																																													
Project Name:		City:																																													
Project Location:		State:																																													
Phone #:		Zip:																																													
Sample Name:		Phone #:																																													
Fax #:																																															
FOR LAB USE ONLY																																															
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME		BTEX		TPH		CI													
H001585		55-1'																								7/14/16		11		11		11															
-11		55-2'																																													

February 09, 2017

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: LUSK DEEP UNIT A #023H

Enclosed are the results of analyses for samples received by the laboratory on 02/02/17 15:00.

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:	02/02/2017	Sampling Date:	01/31/2017
Reported:	02/09/2017	Sampling Type:	Soil
Project Name:	LUSK DEEP UNIT A #023H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Brittany Feller
Project Location:	LEA COUNTY, NM		

Sample ID: SP1 @ 3' (H700259-01)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2720	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SP1 @ 4' (H700259-02)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1560	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SP1 @ 5' (H700259-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SP1 @ 6' (H700259-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	02/06/2017	ND	416	104	400	0.00	

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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: 02/02/2017
Reported: 02/09/2017
Project Name: LUSK DEEP UNIT A #023H
Project Number: NONE GIVEN
Project Location: LEA COUNTY, NM

Sampling Date: 01/31/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Brittany Feller

Sample ID: SP4 @ 3' (H700259-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3120	16.0	02/06/2017	ND	416	104	400	0.00		

Sample ID: SP4 @ 4' (H700259-06)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1280	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SP4 @ 5' (H700259-07)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SP4 @ 6' (H700259-08)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SP5 @ 3' (H700259-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	832	16.0	02/06/2017	ND	416	104	400	0.00	

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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: 02/02/2017
Reported: 02/09/2017
Project Name: LUSK DEEP UNIT A #023H
Project Number: NONE GIVEN
Project Location: LEA COUNTY, NM

Sampling Date: 01/31/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Brittany Feller

Sample ID: SP5 @ 4' (H700259-10)

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	02/06/2017	ND	416	104	400	0.00		

Sample ID: SP5 @ 5' (H700259-11)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SP5 @ 6' (H700259-12)

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	02/06/2017	ND	416	104	400	0.00	

Sample ID: NORTH SAMPLE @ 1' (H700259-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	02/06/2017	ND	416	104	400	0.00		

Sample ID: EAST SAMPLE @ 1' (H700259-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/06/2017	ND	416	104	400	0.00		

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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:	02/02/2017	Sampling Date:	01/31/2017
Reported:	02/09/2017	Sampling Type:	Soil
Project Name:	LUSK DEEP UNIT A #023H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Brittany Feller
Project Location:	LEA COUNTY, NM		

Sample ID: WEST SAMPLE @ 1' (H700259-15)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	02/06/2017	ND	416	104	400	0.00	

Sample ID: SOUTH SAMPLE @ 1' (H700259-16)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	02/06/2017	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager

October 20, 2017

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: LUSK DEEP UNIT A #023H

Enclosed are the results of analyses for samples received by the laboratory on 10/16/17 13:05.

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:

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

Received: 10/16/2017
Reported: 10/20/2017
Project Name: LUSK DEEP UNIT A #023H
Project Number: NONE GIVEN
Project Location: LEA COUNTY, NM

Sampling Date: 10/13/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: SP 1 @ 10' (H702787-01)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	10/20/2017	ND	432	108	400	3.64	

Sample ID: SP 2 @ 3' (H702787-02)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/20/2017	ND	432	108	400	3.64	

Sample ID: SP 2 @ 8' (H702787-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	10/20/2017	ND	432	108	400	3.64	

Sample ID: SP 3 @ 7' (H702787-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	10/20/2017	ND	432	108	400	3.64	

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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:	10/16/2017	Sampling Date:	10/13/2017
Reported:	10/20/2017	Sampling Type:	Soil
Project Name:	LUSK DEEP UNIT A #023H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

Sample ID: SP 4 @ 10' (H702787-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	10/20/2017	ND	432	108	400	3.64		

Sample ID: SP 5 @ 9' (H702787-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	10/20/2017	ND	432	108	400	3.64	

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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RPD	Relative Percent Difference
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***	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

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Celey D. Keene, Lab Director/Quality Manager



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

1071

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-4276
correction + 2502

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

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC	Contact: Robert McNeill	
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443	
Facility Name: LUSK DEEP UNIT A #023H	Facility Type: Battery	
Surface Owner: Federal	Mineral Owner: Federal	API No. 30-025-40260

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	19	19S	32E	330'	South	380'	East	Lea

Latitude Longitude

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 210 bbls PW	Volume Recovered: 190 bbls PW
Source of Release: Poly Flowline	Date and Hour of Occurrence: 6/10/2016 unknown	Date and Hour of Discovery: 6/10/2016 5:00 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Jaime Keyes – NMOCD / Shelly Tucker – BLM	
By Whom? Amanda Trujillo Davis	Date and Hour: Friday, June 10, 2016 8:59 PM	
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.* This release was caused by poly flowline on the backside of the battery. Vacuum trucks were dispatched to recover all standing fluid.		
Describe Area Affected and Cleanup Action Taken.* This release occurred behind the battery in the pasture. The weld was repaired and the fluids recovered. 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: <i>Amanda T. Davis</i>	OIL CONSERVATION DIVISION	
Printed Name: Amanda Trujillo Davis	Approved by Environmental Specialist:	
Title: Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address: atrujillo@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: June 20, 2016	Phone: 575-748-6940	

* Attach Additional Sheets If Necessary