



[Sheldon L. Hitchcock]  
[HSE Coordinator]

February 27, 2019

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

James Amos  
Bureau of Land Management, CFO  
620 E. Green Street  
Carlsbad, NM 88220

**Re: Closure Letter  
Lusk Deep Unit A #019 SWD  
API #: 30-025-35244  
RP#: 1RP-5098  
Unit Letter M, Section 17, Township 19 S, Range 32 E  
Lea County, New Mexico**

Mr. Billings/Mr. Amos,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Lusk Deep Unit #019 SWD. This release occurred on June 14, 2018. Following the release an assessment of impacted soils was conducted. A remediation work plan was submitted to and subsequently approved by the New Mexico Oil Conservation Division (NMOCD) and the Bureau of Land Management. A copy of the approved work plan is attached in Appendix V.

## **BACKGROUND**

The Lusk Deep Unit A #019 release was located in Unit Letter M, Section 17, Township 19 South and Range 32 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.655478 North and -103.795820 West.

On June 14, 2018, flowline failed resulting in the release of approximately six (6) barrels (bbls) of produced water. A vacuum truck was utilized to recover all freestanding fluids.

Remediation activities were conducted in accordance with the approved work plan and NMOCD/BLM stipulations. The analytical results from the NMOCD stipulated confirmation soil sampling activities are summarized in the table below. A site diagram of the excavated area is presented in Appendix I.

February 27, 2019

**GROUNDWATER AND SITE RANKING**

According New Mexico Office of the State Engineer groundwater in the project vicinity is approximately one-hundred and two (102) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is zero (0) based on the following:

Depth to groundwater >100-feet  
 Distance to surface water body >1000-feet  
 Wellhead Protection Area >1000-feet

**CONFIRMATION SOIL SAMPLING RESULTS**

Sample ID	Sample Depth (ft)	Sample Date	TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			GRO	DRO	MRO	Total	GRO	DRO	Total			
NMOCD RRAL Limits (mg/kg)			-	-	-	2,500	-	-	1,000	10	50	20,000
BTTM-1	2.5	1/14/2019	<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.05	<0.300	64
SW-1	N/A	1/14/2019	<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.05	<0.300	336
SW-2	N/A	1/14/2019	<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.05	<0.300	32
SW-3	N/A	1/14/2019	<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.05	<0.300	32
SW-4	N/A	1/14/2019	<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.05	<0.300	96
SW-5	N/A	1/14/2019	<10.0	<10.0	<10.0	0.0	<10.0	<10.0	0.0	<0.05	<0.300	32
SW-6	N/A	1/14/2019	<10.0	12.4	<10.0	12.4	<10.0	12.4	12.4	<0.05	<0.300	272

February 27, 2019

## REMEDIAL ACTIONS

- The impacted area in the vicinity of sample location SP-1 was excavated to a depth of two and one-half (2.5) feet BGS.
- The impacted area in the vicinity of sample locations SP-2 and SP-3 was excavated to a depth of four (4) feet BGS.
- Per NMOCD stipulations, confirmation soil samples were taken from the bottom in the vicinity of SP-1 and the sidewalls of the excavated area. A site diagram is presented in Appendix I.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Upon receipt of analytical results confirming that all impacted soil above NMOCD RRAL's was successfully removed from the sidewalls and the bottom in the vicinity of SP-1, a liner was installed at the bottom of the four (4) foot BGS excavation in order to encapsulate the remaining chloride impacts.
- The excavation was backfilled with top soil and contoured to match the surrounding location.
- The backfilled area will be seeded with BLM #2 upon proper seasonal timing.

February 27, 2019

## CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the Bureau of Land Management grant closure approval for the Lusk Deep Unit A #019 SWD incident that occurred on June 14, 2018.

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

Sincerely,



Sheldon L. Hitchcock  
HSE Coordinator  
[slhitchcock@concho.com](mailto:slhitchcock@concho.com)

Enclosed:

- Appendix I: Site Diagram
- Appendix II: Groundwater Data
- Appendix III: Initial C-141 (Copy)
- Appendix IV: Final C-141
- Appendix V: Approved Work Plan and Stipulations (Copy)
- Appendix VII: Photographic Documentation
- Appendix VI: Analytical Reports and Chain-of-Custody Forms



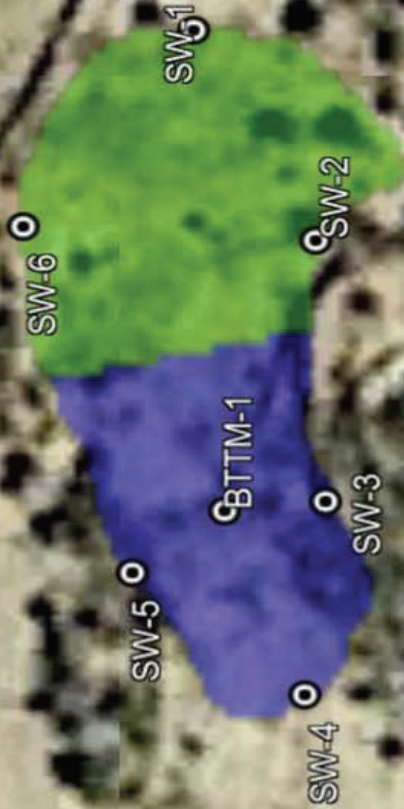
# APPENDIX I

# Lusk Deep Unit A #019 SWD

June 14, 2018

## Legend

- 2.5' Excavation
- 4' Excavation
- Confirmation Sample Location



# APPENDIX II



# 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	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">CP 01656 POD1</a>	CP	LE		3	4	3	17	19S	32E	613368	3613646	352	70		
<a href="#">CP 00640 POD1</a>	CP	LE		2	2	19	19S	32E	612621	3613280*	566	260	102	158	
<a href="#">CP 00639 POD1</a>	CP	LE		3	1	20	19S	32E	613029	3612880*	804	350	345	5	
<a href="#">CP 00563 POD1</a>	CP	LE		1	1	2	19	19S	32E	612118	3613376*	951	300		

Average Depth to Water: **223 feet**

Minimum Depth: **102 feet**

Maximum Depth: **345 feet**

**Record Count:** 4

**Basin/County Search:**

**County:** Lea

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 613018

**Northing (Y):** 3613684

**Radius:** 5000

\*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.

2/27/19 3:11 PM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

# APPENDIX III

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

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

Form C-141  
Revised April 3, 2017  
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 (OGRID #)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Lusk Deep Unit A #019 SWD	Facility Type: Flowline
Surface Owner: Federal	Mineral Owner: Federal
API No. 30-025-35244	

### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	17	19S	32E					Lea

Latitude 32.655478 Longitude -103.795820 NAD83

### NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 6 bbl.	Volume Recovered: 3 bbl.
Source of Release: Flowline Leak	Date and Hour of Occurrence: June 14, 2018 9:00am	Date and Hour of Discovery: June 14, 2018 9:00am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" 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.*		

**RECEIVED**

By CHernandez at 11:22 am, Jun 15, 2018

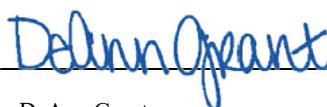

Describe Cause of Problem and Remedial Action Taken.\*

The release was caused by a flowline leak. The flowline has been repaired.

Describe Area Affected and Cleanup Action Taken.\*

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

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

Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: DeAnn Grant	Approved by Environmental Specialist: 	
Title: HSE Administrative Assistant	Approval Date: 6/15/2018	Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval: See attached directive	Attached <input checked="" type="checkbox"/>
Date: June 15, 2018	Phone: 432-253-4513	

\* Attach Additional Sheets If Necessary

1RP-5098

pCH1816642106

nCH1816641500

# APPENDIX IV



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

State of New Mexico  
Energy Minerals and Natural  
Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jennifer Knowlton	Contact Telephone	(432) 683-7443
Contact email	jknowlton@concho.com	Incident # (assigned by OCD)	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

### Location of Release Source

Latitude 32.655478 Longitude -103.795820  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Lusk Deep Unit A #019	Site Type	Flowline
Date Release Discovered	June 14, 2018	API# (if applicable)	30-025-35244

Unit Letter	Section	Township	Range	County
M	17	19S	32E	Lea

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 6	Volume Recovered (bbls) 3
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Flowline failure. The flowline was repaired.

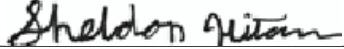


Incident ID	
District RP	
Facility ID	
Application ID	

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

### Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Sheldon L. Hitchcock</u>	Title: <u>HSE Coordinator</u>
Signature: <u></u>	Date: <u>2/27/2019</u>
email: <u>slhitchcock@concho.com</u>	Telephone: <u>575-746-2010</u>
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

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

Printed Name: Sheldon L. Hitchcock

Title: HSE Coordinator

Signature: Sheldon Hitchcock

Date: 2/27/2019

email: slhitchcock@concho.com

Telephone: 575-746-2010

**OCD Only**

Received by: \_\_\_\_\_

Date: \_\_\_\_\_

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

Closure Approved by: Brittany Hall

Date: 12/12/2022

Printed Name: Brittany Hall

Title: Environmental Specialist

# APPENDIX V



0

30

60

90

120

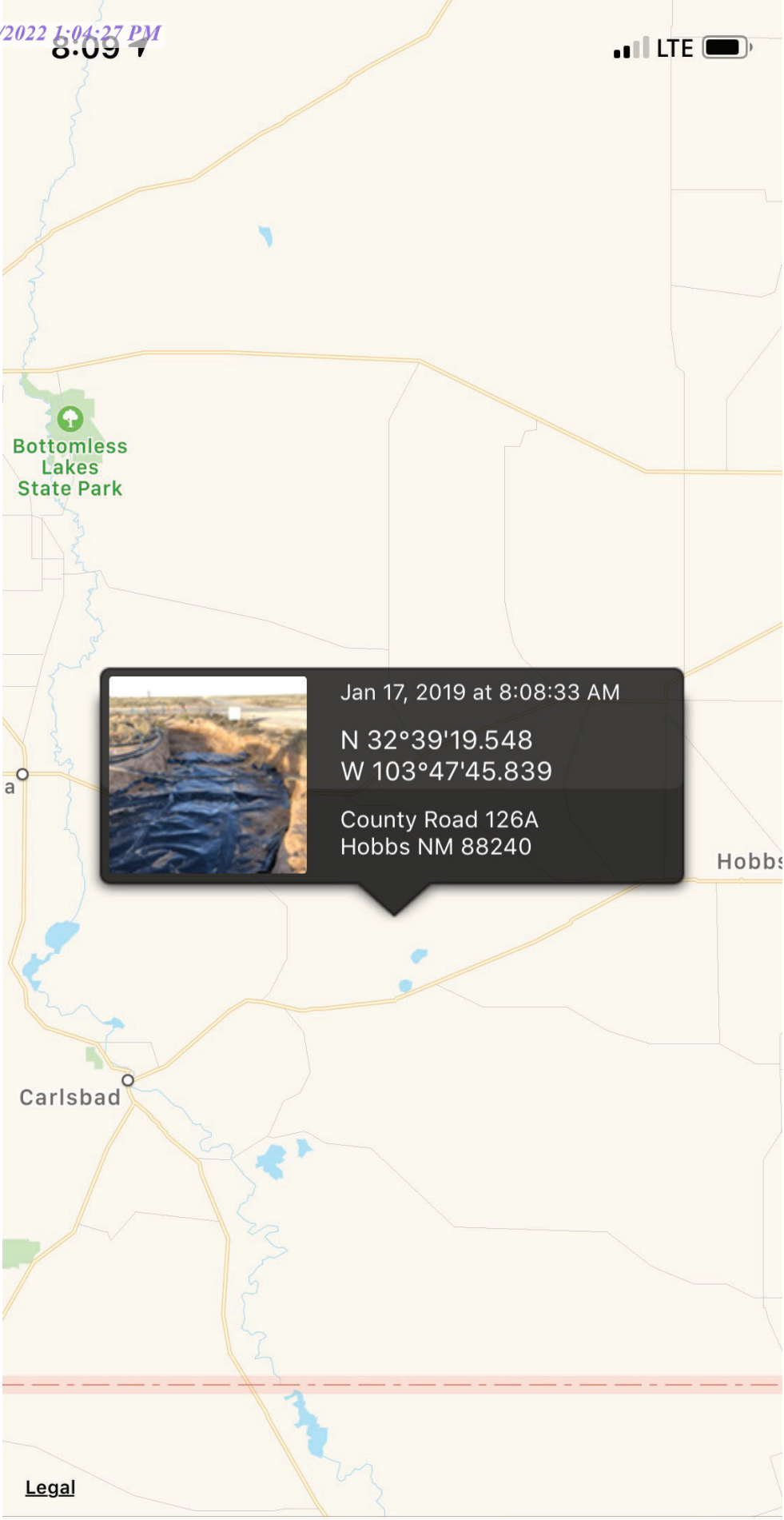
☼ 55°NE (T) ● 32.655457°, -103.796288° ±16.4ft ▲ 3587ft



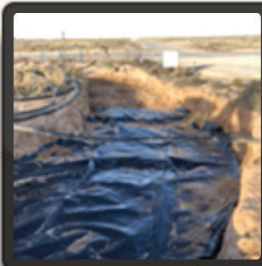


8:09

LTE



Bottomless  
Lakes  
State Park



Jan 17, 2019 at 8:08:33 AM

N 32°39'19.548  
W 103°47'45.839

County Road 126A  
Hobbs NM 88240

Carlsbad

Hobbs

Legal









# APPENDIX VI



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

---

January 15, 2019

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: LUSK DEEP UNIT A #019 SWD

Enclosed are the results of analyses for samples received by the laboratory on 01/14/19 16:34.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager





PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 01/14/2019  
Reported: 01/15/2019  
Project Name: LUSK DEEP UNIT A #019 SWD  
Project Number: NONE GIVEN  
Project Location: LEA COUNTY, NM

Sampling Date: 01/14/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: BOTTOM - 1 2.5' (H900114-01)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

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	01/15/2019	ND	416	104	400	3.92	

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	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 94.0 % 41-142

Surrogate: 1-Chlorooctadecane 94.0 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 01/14/2019  
Reported: 01/15/2019  
Project Name: LUSK DEEP UNIT A #019 SWD  
Project Number: NONE GIVEN  
Project Location: LEA COUNTY, NM

Sampling Date: 01/14/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SW - 1 (H900114-02)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	01/15/2019	ND	416	104	400	3.92	

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	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 91.9 % 41-142

Surrogate: 1-Chlorooctadecane 92.0 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 01/14/2019  
Reported: 01/15/2019  
Project Name: LUSK DEEP UNIT A #019 SWD  
Project Number: NONE GIVEN  
Project Location: LEA COUNTY, NM

Sampling Date: 01/14/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SW - 2 (H900114-03)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

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	01/15/2019	ND	416	104	400	3.92	

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	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 92.4 % 41-142

Surrogate: 1-Chlorooctadecane 92.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 01/14/2019  
Reported: 01/15/2019  
Project Name: LUSK DEEP UNIT A #019 SWD  
Project Number: NONE GIVEN  
Project Location: LEA COUNTY, NM

Sampling Date: 01/14/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SW - 3 (H900114-04)**

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	01/15/2019	ND	2.03	101	2.00	18.3		
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7		
Total BTX	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.3-129

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	01/15/2019	ND	416	104	400	3.92		

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	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 95.1 % 41-142

Surrogate: 1-Chlorooctadecane 93.1 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 01/14/2019  
Reported: 01/15/2019  
Project Name: LUSK DEEP UNIT A #019 SWD  
Project Number: NONE GIVEN  
Project Location: LEA COUNTY, NM

Sampling Date: 01/14/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SW - 4 (H900114-05)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	01/15/2019	ND	416	104	400	3.92	

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	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 92.6 % 41-142

Surrogate: 1-Chlorooctadecane 92.6 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 01/14/2019  
Reported: 01/15/2019  
Project Name: LUSK DEEP UNIT A #019 SWD  
Project Number: NONE GIVEN  
Project Location: LEA COUNTY, NM

Sampling Date: 01/14/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SW - 5 (H900114-06)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 73.3-129

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	01/15/2019	ND	416	104	400	3.92		

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	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 90.9 % 41-142

Surrogate: 1-Chlorooctadecane 90.9 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
SHELDON HITCHCOCK  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 01/14/2019  
Reported: 01/15/2019  
Project Name: LUSK DEEP UNIT A #019 SWD  
Project Number: NONE GIVEN  
Project Location: LEA COUNTY, NM

Sampling Date: 01/14/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SW - 6 (H900114-07)**

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	01/15/2019	ND	2.03	101	2.00	18.3	
Toluene*	<0.050	0.050	01/15/2019	ND	2.18	109	2.00	19.1	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.09	104	2.00	20.2	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.17	103	6.00	21.7	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	01/15/2019	ND	416	104	400	3.92		

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	01/15/2019	ND	209	105	200	4.61	
DRO >C10-C28*	12.4	10.0	01/15/2019	ND	210	105	200	1.44	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 86.7 % 41-142

Surrogate: 1-Chlorooctadecane 81.5 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

---

### Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager



## Analysis Request of Chain of Custody Record



One Concho Center/6001 Illinois  
Avenue/Midland, Texas  
Tel (432) 683-7443

Page 1 of 10

Page 10 of 10

Client Name: COG-Artesia Site Manager: Sheldon Hitchcock

Project Name:

Project Location: (county, state) Lusk Deep water A # 0145 WD

Project #: Project #:

Invoice to:

Sheldon Hitchcock

Receiving Laboratory:

Cardinal

Comments:

Rush

LAB # H920114

LAB USE ONLY

## SAMPLE IDENTIFICATION

LAB #	SAMPLE IDENTIFICATION	DATE	TIME	WATER	SOIL	HCL	HNO <sub>3</sub>	ICE	# CONTAINERS	Grab(G) / Comp(C)
1	B+M-1 2.5'	1/14	3:30	/	/	/	/	/	1	C
2	SV-1		3:32	/	/	/	/	/	1	C
3	SV-2		3:34	/	/	/	/	/	1	C
4	SV-3		3:36	/	/	/	/	/	1	C
5	SV-4		3:38	/	/	/	/	/	1	C
6	SV-5		3:40	/	/	/	/	/	1	C
7	SV-6		3:42	/	/	/	/	/	1	C

Relinquished by: Date: Time:

Sheldon Piri Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

Wendi Murrell 1/14/19 14:34

Received by: Date: Time:

## ANALYSIS REQUEST

(Circle or Specify Method No.)

TPH 8015M ( GRO - DRO - MRO)  
BTX 8021B  
Chloride

Hold

LAB USE ONLY

Sample Temperature

5.22

## REMARKS:

- ☒ RUSH: Same Day 24 hr 48 hr 72 hr  
☐ Rush Charges Authorized  
☐ Special Report Limits or TRRP Report

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS  
  
Action 166140

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 166140
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	12/12/2022