



May 1, 2020

Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM

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

Re: Closure Report
SL Deep Federal #3 (9/15/18)
RP#: 1RP-5216
GPS: 32.63602, -103.80878
Unit Letter C, Section 30, Township 19 South, Range 32 East
Lea County, New Mexico

To Whom it May Concern,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred at the SL Deep Federal #3 flowline located in Unit Letter C, Section 30, Township 19 South and Range 32 East in Lea County, New Mexico.

BACKGROUND

The release was discovered on September 15, 2018 and a C-141 initial report was submitted and approved by the New Mexico Oil Conservation Division (NMOCD). The release was caused by a flowline corrosion on the pad and some migrated into the pasture. Approximately eight (8) barrels of produced water were released and four (4) barrels of fluid recovered. The initial C-141 is shown in Appendix A. The fluid impacted the pad and a portion of the pasture adjacent to the pad.

GROUNDWATER AND REGULATORY

According to the USGS groundwater data, there are two (2) reported water wells in Section 19 and 20, with reported depths of 102' and 345' below surface, respectively. The water well information is shown in Appendix B.

An evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production facilities in New Mexico (effective August 14, 2018). According to the site characterization evaluation, no other receptors (water wells, playas, karst, watercourse, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The groundwater data and the site characterization evaluation data are summarized in Appendix B. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
None Encountered	>100 feet

Delineation and Closure Criteria:

Remedial Action Levels (RALs)	
Chlorides	20,000 mg/kg
TPH (GRO and DRO and MRO)	2,500 mg/kg
TPH (GRO and DRO)	1,000 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

APPROVED WORK PLAN SUMMARY

- All samples were below the Table 1 closure criteria and thus no remediation occurred at the site.
- As requested by the BLM, the pad area was scrapped to remove the elevated chlorides in the shallow soils.
- Performed reclamation activities in the pasture.

SITE RECLAMATION AND RESTORATION

Concho perform the reclamation and revegetation in the pasture area per NMED 19.15.29.13. As approved, the reclamation was achieved by removing the soil to a depth of 4.0' below surface. Once excavated, soil composite samples were collected from the sidewalls to confirm the removal of impact soil greater than 600 mg/kg chlorides or background (whichever is greater). Approximately 250 cubic yards of material was removed and hauled to proper disposal. The backfilled material used was non-contaminated with concentrations below 600 mg/kg chlorides. The disturbed area will be scheduled to be seeded per BLM guidelines.

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 SL Deep Federal #3 incident that occurred on September 15, 2018 (1RP-5216).

Should you have any questions or concerns on the closure report, please do not hesitate to contact me.
Sincerely,

Concho Operating, LLC



Ike Tavarez, P. G.
Senior HSE Supervisor
itavarez@concho.com

Figures

COG Operating LLC

SL Deep Federal #1
Section 30, T19S, T32E, Unit C
Lea County, New Mexico
32.63602 -103.80878

Legend

 SITE LOCATION



COG Operating

SL Deep Federal #1
Section 30, T19S, R32E
Lea County, New Mexico
32.63602 -103.80878

Legend


- BLM Requested Surface Scrape
- Confirmation Samples
- Pasture - 4' Excavation



Tables

Table 1
COG Operating LLC.
SL Deep Federal #3 Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Soil Status		TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
		In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO	Total			
Pasture Area													
Westwall (CS-3)	2/13/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.001	<0.001	12.80
Eastwall (CS-3)	2/13/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.001	<0.001	35.1
Southwall (CS-3)	2/13/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.002	<0.002	11.3
Northwall (CS-3)	2/25/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.002	<0.002	6.25
Bottom 4' (CS-3)	2/13/2020	X		<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<0.001	<0.001	8.6
											6.25		
Pad Area													
Westwall (CS-1)	2/14/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.001	<0.001	872
Eastwall (CS-1)	2/14/2020	X		<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<0.001	<0.001	830
Bottom 0.5' (CS-1)	2/14/2020	X		<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<0.001	<0.001	944
Bottom 0.5' (CS-2)	2/14/2020	X		<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<49.0	<0.002	<0.002	906

 Pad Area Scraped Per BLM
 (-) Not Analyzed

Photos

COG Operating –Photos SL Deep Federal #3



View of Excavation on Pad



View of Pasture Excavation

COG Operating - Photos SL Deep Federal #3



View of Pad Backfilling



View of Pad and Pasture Backfilling

Appendix A

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

State of New Mexico
Energy Minerals and Natural
Resources 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	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

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 type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input 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

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 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 type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input 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: _____	Title: _____
Signature: <u>Delann Grant</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	1RP 5216
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	≥100 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
515	
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

Characterization Report Checklist: *Each of the following items must be included in the report.*

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

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

Incident ID	
District RP	1RP 5216
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 12/11/18

email: itavarez@concho.com Telephone: 432-683-7443

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

Incident ID	NOY1827440597
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: _____ Title: _____

Signature:  _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Cristina Eads Date: 05/14/2020

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:  _____ Date: 07/21/2020

Printed Name: Cristina Eads Title: Environmental Specialist

Appendix B



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	DepthWell	DepthWater	Water Column
CP 00075	O	CP	LE	2	4	34	19S	32E		617502	3609301	575		
CP 00563 POD1		CP	LE	1	1	2	19	19S	32E	612118	3613376*	300		
CP 00639 POD1		CP	LE	3	1	20	19S	32E	613029	3612880*		350	345	5
CP 00640 POD1		CP	LE	2	2	19	19S	32E	612621	3613280*		260	102	158
CP 00812 POD1		CP	LE	4	4	01	19S	32E	620623	3616973*		200		
CP 01656 POD1		CP	LE	3	4	3	17	19S	32E	613368	3613646	70		

Average Depth to Water: **223 feet**

Minimum Depth: **102 feet**

Maximum Depth: **345 feet**

Record Count: 6

PLSS Search:

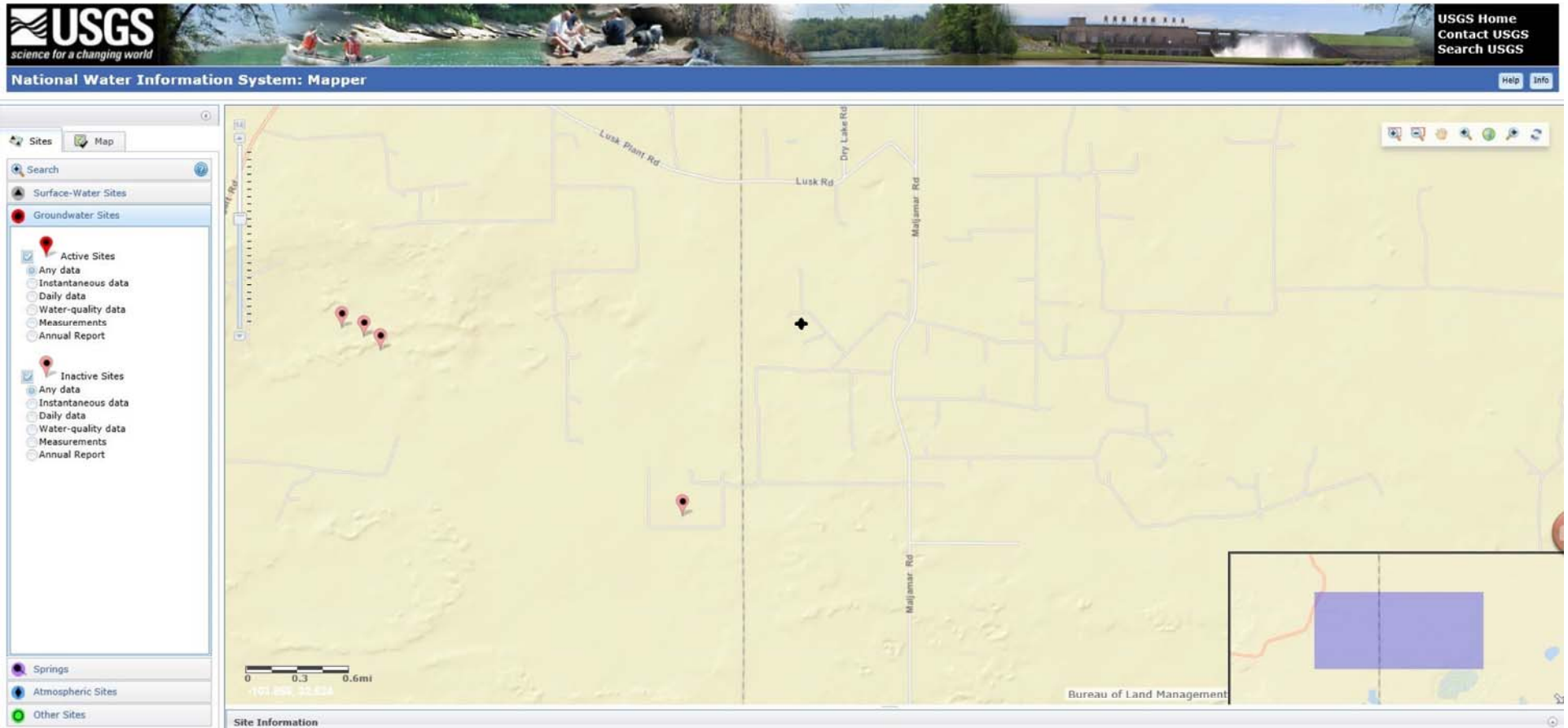
Township: 19S **Range:** 32E

*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.

12/3/18 12:51 PM

WATER COLUMN/ AVERAGE DEPTH
TO WATER





USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:	Geographic Area:	
Groundwater	United States	GO

Click to hideNews Bulletins

- [Please see news on new formats](#)
- [Full News](#)

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =
• 323712103491001

Minimum number of levels = 1

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

USGS 323712103491001 19S.32E.31.114

Available data for this site

Lea County, New Mexico

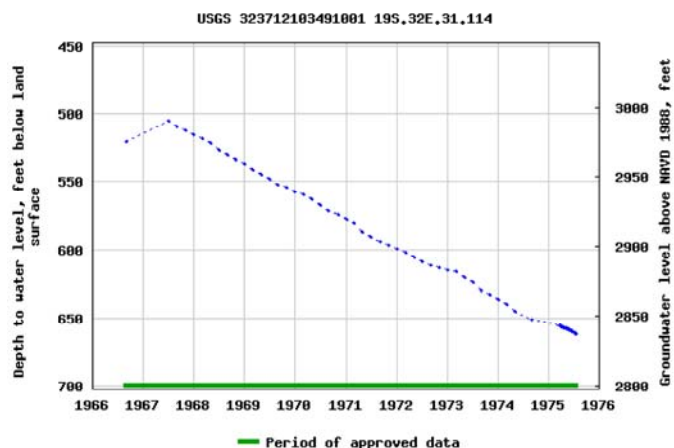
Hydrologic Unit Code 13060011

Latitude 32°37'12", Longitude 103°49'10" NAD27

Land-surface elevation 3,497 feet above NAVD88

Output formats

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



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

[Download a presentation-quality graph](#)

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[Feedback on this web site](#)

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[Data Tips](#)

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Accessibility Plug-Ins FOIA Privacy Policies and Notices

[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels

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



Page Contact Information: [USGS Water Data Support Team](#)

Appendix C



Certificate of Analysis Summary 652641

COG Operating LLC, Artesia, NM

Project Name: SL Deep Federal #3 (09/15/18) 1RP-5216



Project Id:

Contact: Ike Tavaréz

Project Location: Lea County, NM

Date Received in Lab: Mon Feb-17-20 04:12 pm

Report Date: 18-FEB-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	652641-003	652641-004	652641-005	652641-006		
	<i>Field Id:</i>	CS-2 Bottom Hole 6" (Pad)	CS-1 West Wall (Pad)	CS-1 East Wall (Pad)	CS-1 Bottom Hole 6" (Pad)		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Feb-14-20 00:00	Feb-14-20 00:00	Feb-14-20 00:00	Feb-14-20 00:00		
Chloride by EPA 300	<i>Extracted:</i>	Feb-17-20 16:50	Feb-17-20 16:50	Feb-17-20 16:50	Feb-17-20 16:50		
	<i>Analyzed:</i>	Feb-17-20 21:48	Feb-18-20 08:01	Feb-18-20 08:06	Feb-17-20 22:25		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		906 5.05	872 4.99	830 4.96	944 5.00		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Version: 1.9%

Jessica Kramer
Project Assistant

Analytical Report 652641

for COG Operating LLC

Project Manager: Ike Tavaréz

SL Deep Federal #3 (09/15/18) 1RP-5216

18-FEB-20

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)



18-FEB-20

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **652641**

SL Deep Federal #3 (09/15/18) 1RP-5216

Project Address: Lea County, NM

Ike Tavaréz:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 652641. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 652641 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

**Sample Cross Reference 652641****COG Operating LLC, Artesia, NM**

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS-2 Bottom Hole 6" (Pad)	S	02-14-20 00:00		652641-003
CS-1 West Wall (Pad)	S	02-14-20 00:00		652641-004
CS-1 East Wall (Pad)	S	02-14-20 00:00		652641-005
CS-1 Bottom Hole 6" (Pad)	S	02-14-20 00:00		652641-006
CS-2 West Wall (Pad)	S	02-14-20 00:00		Not Analyzed
CS-2 East Wall (Pad)	S	02-14-20 00:00		Not Analyzed



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: SL Deep Federal #3 (09/15/18) IRP-5216

Project ID:

Work Order Number(s): 652641

Report Date: 18-FEB-20

Date Received: 02/17/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 652641



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: CS-2 Bottom Hole 6" (Pad)

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652641-003

Date Collected: 02.14.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	906	5.05	mg/kg	02.17.20 21.48		1



Certificate of Analytical Results 652641



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: CS-1 West Wall (Pad)

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652641-004

Date Collected: 02.14.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	872	4.99	mg/kg	02.18.20 08.01		1



Certificate of Analytical Results 652641



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: CS-1 East Wall (Pad)

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652641-005

Date Collected: 02.14.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	830	4.96	mg/kg	02.18.20 08.06		1



Certificate of Analytical Results 652641



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: CS-1 Bottom Hole 6" (Pad)

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652641-006

Date Collected: 02.14.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	944	5.00	mg/kg	02.17.20 22.25		1



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



COG Operating LLC
SL Deep Federal #3 (09/15/18) 1RP-5216

Analytical Method: Chloride by EPA 300

Seq Number: 3116779

MB Sample Id: 7696834-1-BLK

Matrix: Solid

LCS Sample Id: 7696834-1-BKS

Prep Method: E300P

Date Prep: 02.17.20

LCSD Sample Id: 7696834-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	267	107	264	106	90-110	1	20	mg/kg	02.17.20 19:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3116779

Parent Sample Id: 652560-029

Matrix: Soil

MS Sample Id: 652560-029 S

Prep Method: E300P

Date Prep: 02.17.20

MSD Sample Id: 652560-029 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	132	250	394	105	393	104	90-110	0	20	mg/kg	02.17.20 19:57	

Analytical Method: Chloride by EPA 300

Seq Number: 3116779

Parent Sample Id: 652560-039

Matrix: Soil

MS Sample Id: 652560-039 S

Prep Method: E300P

Date Prep: 02.17.20

MSD Sample Id: 652560-039 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	106	249	373	107	370	106	90-110	1	20	mg/kg	02.17.20 22:07	

MS/MSD Percent Recovery
 Relative Percent Difference
 LCS/LCSD Recovery
 Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Page 1 of 1



One Concho
Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

1052641

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 02.17.2020 04.12.00 PM

Work Order #: 652641

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	N/A
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Alexis Jaime

Date: 02.17.2020

Checklist reviewed by:



Jessica Kramer

Date: 02.18.2020



Certificate of Analysis Summary 652642

COG Operating LLC, Artesia, NM

Project Name: SL Deep Federal #3 (09/15/18) 1RP-5216



Project Id:

Contact: Ike Tavarez

Project Location: Lea County, NM

Date Received in Lab: Mon Feb-17-20 04:12 pm

Report Date: 18-FEB-20

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	652642-001	652642-002	652642-003	652642-004		
	<i>Field Id:</i>	CS-3 West Wall (pasture)	CS-3 East Wall (pasture)	CS-3 South Wall (pasture)	CS-3 Bottom Hole 4" (pastur		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Feb-13-20 00:00	Feb-13-20 00:00	Feb-13-20 00:00	Feb-13-20 00:00		
BTEX by EPA 8021B	<i>Extracted:</i>	*** ** *	*** ** *	*** ** *	*** ** *		
	<i>Analyzed:</i>	Feb-17-20 19:38	Feb-17-20 19:58	Feb-17-20 20:18	Feb-17-20 20:39		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199		
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199		
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199		
m,p-Xylenes		<0.00398 0.00398	<0.00397 0.00397	<0.00399 0.00399	<0.00398 0.00398		
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199		
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199		
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199		
Chloride by EPA 300	<i>Extracted:</i>	Feb-17-20 16:50	Feb-17-20 16:50	Feb-17-20 16:50	Feb-17-20 16:50		
	<i>Analyzed:</i>	Feb-17-20 22:35	Feb-17-20 23:02	Feb-17-20 23:12	Feb-17-20 23:21		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		12.8 5.00	35.1 5.04	11.3 5.02	8.60 5.00		
TPH By SW8015 Mod	<i>Extracted:</i>	Feb-17-20 17:00	Feb-17-20 17:00	Feb-17-20 17:00	Feb-17-20 17:00		
	<i>Analyzed:</i>	Feb-17-20 22:12	Feb-17-20 22:31	Feb-17-20 22:50	Feb-17-20 23:09		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons		<50.0 50.0	<49.9 49.9	<49.8 49.8	<49.9 49.9		
Diesel Range Organics		<50.0 50.0	<49.9 49.9	<49.8 49.8	<49.9 49.9		
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<49.8 49.8	<49.9 49.9		
Total TPH		<50.0 50.0	<49.9 49.9	<49.8 49.8	<49.9 49.9		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 652642

for COG Operating LLC

Project Manager: Ike Tavaréz

SL Deep Federal #3 (09/15/18) 1RP-5216

18-FEB-20

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)



18-FEB-20

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **652642**

SL Deep Federal #3 (09/15/18) 1RP-5216

Project Address: Lea County, NM

Ike Tavaréz:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 652642. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 652642 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

**Sample Cross Reference 652642****COG Operating LLC, Artesia, NM**

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS-3 West Wall (pasture)	S	02-13-20 00:00		652642-001
CS-3 East Wall (pasture)	S	02-13-20 00:00		652642-002
CS-3 South Wall (pasture)	S	02-13-20 00:00		652642-003
CS-3 Bottom Hole 4" (pasture)	S	02-13-20 00:00		652642-004



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: SL Deep Federal #3 (09/15/18) IRP-5216

Project ID:

Work Order Number(s): 652642

Report Date: 18-FEB-20

Date Received: 02/17/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3116769 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Matrix interferences is suspected.

Samples affected are: 652642-001.

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 West Wall (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-001

Date Collected: 02.13.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.8	5.00	mg/kg	02.17.20 22.35		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 02.17.20 17.00

Basis: Wet Weight

Seq Number: 3116818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	02.17.20 22.12	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	02.17.20 22.12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.17.20 22.12	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.17.20 22.12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	81	%	70-135	02.17.20 22.12		
o-Terphenyl	84-15-1	77	%	70-135	02.17.20 22.12		



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 West Wall (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-001

Date Collected: 02.13.20 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 02.14.20 16.45

Basis: Wet Weight

Seq Number: 3116769

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.17.20 19.38	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.17.20 19.38	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.17.20 19.38	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.17.20 19.38	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.17.20 19.38	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.17.20 19.38	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.17.20 19.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	69	%	70-130	02.17.20 19.38	**	
1,4-Difluorobenzene	540-36-3	111	%	70-130	02.17.20 19.38		



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 East Wall (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-002

Date Collected: 02.13.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	35.1	5.04	mg/kg	02.17.20 23.02		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 02.17.20 17.00

Basis: Wet Weight

Seq Number: 3116818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	02.17.20 22.31	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	02.17.20 22.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.17.20 22.31	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.17.20 22.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	02.17.20 22.31	
o-Terphenyl	84-15-1	86	%	70-135	02.17.20 22.31	



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 East Wall (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-002

Date Collected: 02.13.20 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 02.14.20 16.45

Basis: Wet Weight

Seq Number: 3116769

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.17.20 19.58	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.17.20 19.58	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.17.20 19.58	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	02.17.20 19.58	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.17.20 19.58	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.17.20 19.58	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.17.20 19.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	117	%	70-130	02.17.20 19.58		
4-Bromofluorobenzene	460-00-4	78	%	70-130	02.17.20 19.58		



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 South Wall (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-003

Date Collected: 02.13.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.3	5.02	mg/kg	02.17.20 23.12		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 02.17.20 17.00

Basis: Wet Weight

Seq Number: 3116818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	02.17.20 22.50	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	02.17.20 22.50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	02.17.20 22.50	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	02.17.20 22.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	79	%	70-135	02.17.20 22.50		
o-Terphenyl	84-15-1	73	%	70-135	02.17.20 22.50		



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 South Wall (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-003

Date Collected: 02.13.20 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 02.14.20 16.45

Basis: Wet Weight

Seq Number: 3116769

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.17.20 20.18	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.17.20 20.18	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.17.20 20.18	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.17.20 20.18	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.17.20 20.18	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.17.20 20.18	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.17.20 20.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	73	%	70-130	02.17.20 20.18		
1,4-Difluorobenzene	540-36-3	115	%	70-130	02.17.20 20.18		



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 Bottom Hole 4" (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-004

Date Collected: 02.13.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.17.20 16.50

Basis: Wet Weight

Seq Number: 3116779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8.60	5.00	mg/kg	02.17.20 23.21		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 02.17.20 17.00

Basis: Wet Weight

Seq Number: 3116818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	02.17.20 23.09	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	02.17.20 23.09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	02.17.20 23.09	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	02.17.20 23.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	02.17.20 23.09	
o-Terphenyl	84-15-1	76	%	70-135	02.17.20 23.09	



Certificate of Analytical Results 652642



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 Bottom Hole 4" (pasture)**

Matrix: Soil

Date Received: 02.17.20 16.12

Lab Sample Id: 652642-004

Date Collected: 02.13.20 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 02.14.20 16.45

Basis: Wet Weight

Seq Number: 3116769

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.17.20 20.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.17.20 20.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.17.20 20.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.17.20 20.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.17.20 20.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.17.20 20.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.17.20 20.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	84	%	70-130	02.17.20 20.39		
1,4-Difluorobenzene	540-36-3	120	%	70-130	02.17.20 20.39		



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



COG Operating LLC
SL Deep Federal #3 (09/15/18) 1RP-5216

Analytical Method: Chloride by EPA 300

Seq Number: 3116779

MB Sample Id: 7696834-1-BLK

Matrix: Solid

LCS Sample Id: 7696834-1-BKS

Prep Method: E300P

Date Prep: 02.17.20

LCSD Sample Id: 7696834-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	267	107	264	106	90-110	1	20	mg/kg	02.17.20 19:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3116779

Parent Sample Id: 652560-029

Matrix: Soil

MS Sample Id: 652560-029 S

Prep Method: E300P

Date Prep: 02.17.20

MSD Sample Id: 652560-029 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	132	250	394	105	393	104	90-110	0	20	mg/kg	02.17.20 19:57	

Analytical Method: Chloride by EPA 300

Seq Number: 3116779

Parent Sample Id: 652560-039

Matrix: Soil

MS Sample Id: 652560-039 S

Prep Method: E300P

Date Prep: 02.17.20

MSD Sample Id: 652560-039 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	106	249	373	107	370	106	90-110	1	20	mg/kg	02.17.20 22:07	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3116818

MB Sample Id: 7696850-1-BLK

Matrix: Solid

LCS Sample Id: 7696850-1-BKS

Prep Method: SW8015P

Date Prep: 02.17.20

LCSD Sample Id: 7696850-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<15.0	1000	1050	105	1060	106	70-135	1	20	mg/kg	02.18.20 08:36	
Diesel Range Organics	<15.0	1000	1130	113	1050	105	70-135	7	20	mg/kg	02.18.20 08:36	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	84		115		117		70-135	%	02.18.20 08:36
o-Terphenyl	84		111		105		70-135	%	02.18.20 08:36

Analytical Method: TPH By SW8015 Mod

Seq Number: 3116818

Matrix: Solid

MB Sample Id: 7696850-1-BLK

Prep Method: SW8015P

Date Prep: 02.17.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.17.20 20:01	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C-A) / B$
 $RPD = 200 * |(C-E) / (C+E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



COG Operating LLC
SL Deep Federal #3 (09/15/18) 1RP-5216

Analytical Method: TPH By SW8015 Mod

Seq Number: 3116818

Parent Sample Id: 652509-001

Matrix: Soil

MS Sample Id: 652509-001 S

Prep Method: SW8015P

Date Prep: 02.17.20

MSD Sample Id: 652509-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<15.0	998	983	98	851	85	70-135	14	20	mg/kg	02.17.20 21:16	
Diesel Range Organics	<15.0	998	1060	106	932	93	70-135	13	20	mg/kg	02.17.20 21:16	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		96		70-135	%	02.17.20 21:16
o-Terphenyl	100		85		70-135	%	02.17.20 21:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3116769

MB Sample Id: 7696674-1-BLK

Matrix: Solid

LCS Sample Id: 7696674-1-BKS

Prep Method: SW5030B

Date Prep: 02.14.20

LCSD Sample Id: 7696674-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.113	113	0.118	118	70-130	4	35	mg/kg	02.17.20 13:06	
Toluene	<0.000456	0.100	0.112	112	0.113	113	70-130	1	35	mg/kg	02.17.20 13:06	
Ethylbenzene	<0.000565	0.100	0.105	105	0.106	106	70-130	1	35	mg/kg	02.17.20 13:06	
m,p-Xylenes	<0.00101	0.200	0.211	106	0.212	106	70-130	0	35	mg/kg	02.17.20 13:06	
o-Xylene	<0.000344	0.100	0.106	106	0.104	104	70-130	2	35	mg/kg	02.17.20 13:06	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		112		115		70-130	%	02.17.20 13:06
4-Bromofluorobenzene	72		88		87		70-130	%	02.17.20 13:06

Analytical Method: BTEX by EPA 8021B

Seq Number: 3116769

Parent Sample Id: 652384-002

Matrix: Soil

MS Sample Id: 652384-002 S

Prep Method: SW5030B

Date Prep: 02.14.20

MSD Sample Id: 652384-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.000709	0.100	0.0105	10	0.0955	95	70-130	160	35	mg/kg	02.17.20 14:43	XF
Toluene	0.000709	0.100	0.0151	14	0.102	101	70-130	148	35	mg/kg	02.17.20 14:43	XF
Ethylbenzene	<0.000566	0.100	0.0222	22	0.102	102	70-130	129	35	mg/kg	02.17.20 14:43	XF
m,p-Xylenes	<0.00102	0.200	0.0367	18	0.173	87	70-130	130	35	mg/kg	02.17.20 14:43	XF
o-Xylene	0.000848	0.100	0.0292	28	0.122	121	70-130	123	35	mg/kg	02.17.20 14:43	XF

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		107		70-130	%	02.17.20 14:43
4-Bromofluorobenzene	99		96		70-130	%	02.17.20 14:43

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



**One Concho
Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

Page 1 of 1[illegible]

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 02.17.2020 04.12.00 PM

Work Order #: 652642

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	N/A
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Alexis Jaime

Date: 02.17.2020

Checklist reviewed by:



Jessica Kramer

Date: 02.18.2020



Certificate of Analysis Summary 653717

COG Operating LLC, Artesia, NM

Project Name: SL Deep Federal #3 (09/15/18) 1RP-5216



Project Id:

Contact: Ike Tavarez

Project Location: Lea County, NM

Date Received in Lab: Wed Feb-26-20 09:39 am

Report Date: 27-FEB-20

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 653717-001 Field Id: CS-3 North Wall (Pasture) Depth: Matrix: SOIL Sampled: Feb-25-20 00:00					
BTEX by EPA 8021B	Extracted: Feb-26-20 13:00 Analyzed: Feb-26-20 16:58 Units/RL: mg/kg RL					
Benzene	<0.00200 0.00200					
Toluene	<0.00200 0.00200					
Ethylbenzene	<0.00200 0.00200					
m,p-Xylenes	<0.00400 0.00400					
o-Xylene	<0.00200 0.00200					
Total Xylenes	<0.00200 0.00200					
Total BTEX	<0.00200 0.00200					
Chloride by EPA 300	Extracted: Feb-26-20 11:50 Analyzed: Feb-26-20 13:51 Units/RL: mg/kg RL					
Chloride	6.25 4.97					
TPH By SW8015 Mod	Extracted: Feb-26-20 14:30 Analyzed: Feb-26-20 18:58 Units/RL: mg/kg RL					
Gasoline Range Hydrocarbons	<50.0 50.0					
Diesel Range Organics	<50.0 50.0					
Motor Oil Range Hydrocarbons (MRO)	<50.0 50.0					
Total TPH	<50.0 50.0					

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Version: 1.9%

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 653717

for COG Operating LLC

Project Manager: Ike Tavaréz

SL Deep Federal #3 (09/15/18) 1RP-5216

27-FEB-20

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)

Xenco-Carlsbad (LELAP): Louisiana (05092)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Tampa: Florida (E87429), North Carolina (483)



27-FEB-20

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **653717**

SL Deep Federal #3 (09/15/18) 1RP-5216

Project Address: Lea County, NM

Ike Tavaréz:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 653717. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 653717 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 653717



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS-3 North Wall (Pasture)	S	02-25-20 00:00		653717-001



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: SL Deep Federal #3 (09/15/18) IRP-5216

Project ID:

Work Order Number(s): 653717

Report Date: 27-FEB-20

Date Received: 02/26/2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3117820 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 653717



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 North Wall (Pasture)**

Matrix: Soil

Date Received: 02.26.20 09.39

Lab Sample Id: 653717-001

Date Collected: 02.25.20 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 02.26.20 11.50

Basis: Wet Weight

Seq Number: 3117799

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.25	4.97	mg/kg	02.26.20 13.51		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 02.26.20 14.30

Basis: Wet Weight

Seq Number: 3117889

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	02.26.20 18.58	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	02.26.20 18.58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	02.26.20 18.58	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	02.26.20 18.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	02.26.20 18.58	
o-Terphenyl	84-15-1	80	%	70-135	02.26.20 18.58	



Certificate of Analytical Results 653717



COG Operating LLC, Artesia, NM

SL Deep Federal #3 (09/15/18) 1RP-5216

Sample Id: **CS-3 North Wall (Pasture)**

Matrix: Soil

Date Received: 02.26.20 09.39

Lab Sample Id: 653717-001

Date Collected: 02.25.20 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 02.26.20 13.00

Basis: Wet Weight

Seq Number: 3117820

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.26.20 16.58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.26.20 16.58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.26.20 16.58	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.26.20 16.58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.26.20 16.58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.26.20 16.58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.26.20 16.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	02.26.20 16.58		
1,4-Difluorobenzene	540-36-3	93	%	70-130	02.26.20 16.58		



Flagging Criteria



- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



COG Operating LLC
SL Deep Federal #3 (09/15/18) 1RP-5216

Analytical Method: Chloride by EPA 300

Seq Number: 3117799

MB Sample Id: 7697497-1-BLK

Matrix: Solid

LCS Sample Id: 7697497-1-BKS

Prep Method: E300P

Date Prep: 02.26.20

LCSD Sample Id: 7697497-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	246	98	246	98	90-110	0	20	mg/kg	02.26.20 12:26	

Analytical Method: Chloride by EPA 300

Seq Number: 3117799

Parent Sample Id: 653708-008

Matrix: Soil

MS Sample Id: 653708-008 S

Prep Method: E300P

Date Prep: 02.26.20

MSD Sample Id: 653708-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	646	248	859	86	861	87	90-110	0	20	mg/kg	02.26.20 12:42	X

Analytical Method: Chloride by EPA 300

Seq Number: 3117799

Parent Sample Id: 653717-001

Matrix: Soil

MS Sample Id: 653717-001 S

Prep Method: E300P

Date Prep: 02.26.20

MSD Sample Id: 653717-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.25	249	256	100	257	101	90-110	0	20	mg/kg	02.26.20 13:56	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3117889

MB Sample Id: 7697536-1-BLK

Matrix: Solid

LCS Sample Id: 7697536-1-BKS

Prep Method: SW8015P

Date Prep: 02.26.20

LCSD Sample Id: 7697536-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<15.0	1000	880	88	903	90	70-135	3	20	mg/kg	02.26.20 18:21	
Diesel Range Organics	<15.0	1000	957	96	981	98	70-135	2	20	mg/kg	02.26.20 18:21	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	91		107		111		70-135	%	02.26.20 18:21
o-Terphenyl	93		101		108		70-135	%	02.26.20 18:21

Analytical Method: TPH By SW8015 Mod

Seq Number: 3117889

Matrix: Solid

MB Sample Id: 7697536-1-BLK

Prep Method: SW8015P

Date Prep: 02.26.20

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	02.26.20 18:02	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C-A) / B$
 $RPD = 200 * |(C-E) / (C+E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



COG Operating LLC
SL Deep Federal #3 (09/15/18) 1RP-5216

Analytical Method: TPH By SW8015 Mod

Seq Number: 3117889

Parent Sample Id: 653717-001

Matrix: Soil

MS Sample Id: 653717-001 S

Prep Method: SW8015P

Date Prep: 02.26.20

MSD Sample Id: 653717-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<15.0	998	831	83	829	83	70-135	0	20	mg/kg	02.26.20 19:16	
Diesel Range Organics	<15.0	998	928	93	930	93	70-135	0	20	mg/kg	02.26.20 19:16	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		96		70-135	%	02.26.20 19:16
o-Terphenyl	88		84		70-135	%	02.26.20 19:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117820

MB Sample Id: 7697513-1-BLK

Matrix: Solid

LCS Sample Id: 7697513-1-BKS

Prep Method: SW5030B

Date Prep: 02.26.20

LCSD Sample Id: 7697513-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0909	91	0.0857	86	70-130	6	35	mg/kg	02.26.20 14:04	
Toluene	<0.00200	0.100	0.0893	89	0.0888	89	70-130	1	35	mg/kg	02.26.20 14:04	
Ethylbenzene	<0.00200	0.100	0.0960	96	0.100	100	70-130	4	35	mg/kg	02.26.20 14:04	
m,p-Xylenes	<0.00400	0.200	0.186	93	0.200	100	70-130	7	35	mg/kg	02.26.20 14:04	
o-Xylene	<0.00200	0.100	0.0928	93	0.101	101	70-130	8	35	mg/kg	02.26.20 14:04	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	85		91		89		70-130	%	02.26.20 14:04
4-Bromofluorobenzene	106		97		113		70-130	%	02.26.20 14:04

Analytical Method: BTEX by EPA 8021B

Seq Number: 3117820

Parent Sample Id: 652890-001

Matrix: Soil

MS Sample Id: 652890-001 S

Prep Method: SW5030B

Date Prep: 02.26.20

MSD Sample Id: 652890-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0513	51	0.0576	58	70-130	12	35	mg/kg	02.26.20 14:46	X
Toluene	<0.00200	0.0998	0.0327	33	0.0360	36	70-130	10	35	mg/kg	02.26.20 14:46	X
Ethylbenzene	<0.00200	0.0998	0.0233	23	0.0239	24	70-130	3	35	mg/kg	02.26.20 14:46	X
m,p-Xylenes	<0.00399	0.200	0.0433	22	0.0444	22	70-130	3	35	mg/kg	02.26.20 14:46	X
o-Xylene	<0.00200	0.0998	0.0212	21	0.0223	22	70-130	5	35	mg/kg	02.26.20 14:46	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		99		70-130	%	02.26.20 14:46
4-Bromofluorobenzene	80		71		70-130	%	02.26.20 14:46

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Page 1 of 1



**One Concho
Center/600/llinois
Avenue/Midland, Texas
Tel (432) 683-7443**

152717

Final 1.000

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 02.26.2020 09.39.00 AM

Work Order #: 653717

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Brianna Teel

Date: 02.26.2020

Checklist reviewed by:



Jessica Kramer

Date: 02.26.2020