ARCADIS

COG (ConocoPhillips)

2024 Soil Deferral Request Report

MC Federal #014

Incident # nOY1732453631

April 2024

2024 Soil Deferral Request Report

MC Federal #014
Incident # nOY1732453631

April 2024

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1 Introduction

Arcadis U.S., Inc. (Arcadis) has prepared this Soil Deferral Request Report (Report), on behalf of Concho Operating, LLC (COG – now ConocoPhillips), for the release site known as the MC Federal #014 (Site). Details of the release are summarized in the Initial C-141 Form included as **Appendix A**.

2 Project Summary

The Site is located approximately 12 miles east of Loco Hills in Unit B, Section 21, Township 17 South, Range 32 East, Lea County, New Mexico at GPS coordinates 32.8264313, -103.7694473 . A Site Location Map is included as **Figure 1**.

2.1 Incident # nOY1732453631

According to the Initial C-141 Form, on November 19, 2017, the circulating line piping developed a hole resulting in the release of approximately thirty (30) barrels (bbls) of oil. The fluid was released into the lined containment and twenty-nine (29) bbls were recovered with the use of a vacuum truck. The Initial C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD) on November 20, 2017, and assigned Incident ID number nOY1732453631. The Initial C-141 Form is included as **Appendix A**.

3 Site Characterization

3.1 Initial Site Characterization

After a review of the New Mexico Office of State Engineers (NMOSE) and USGS databases, there are no known water sources within a 0.5-mile radius of the Site. A water well was located approximately 1.08 miles southwest of the site with a depth to water of 81 feet below ground surface (bgs). As such, assessment activities completed to date at the Site have been evaluated assuming a Site with a depth to groundwater as less than 50 feet bgs. The following site characteristics were determined in accordance with 19.15.29 New Mexico Administrative Code (NMAC):

What is the minimum distance, between the closest lateral extents of the release and the following surface areas:

- A continuously flowing watercourse or any other significant watercourse: Between 1 and 5 miles
- Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark): Between 1/2 and 1 mile
- An occupied permanent residence, school, hospital, institution, or church: Between 1 and 5 miles
- A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes: Between 1 and 5 miles
- Any other fresh water well or spring: Between 1 and 5 miles
- Incorporated municipal boundaries or a defined municipal fresh water well field: >5 miles
- A wetland: Between 1 and 5 miles
- A subsurface mine: Between 1 and 5 miles

- A (non-karst) unstable area: >5 miles
- Categorize the risk of this well/site being in Karst Geology: Low
- A 100-year floodplain: Between 1 and 5 miles
- Did the release impact areas not on an exploration, development, production, or storage site? No

The site characterization data is presented in **Appendix B**

3.2 COG Assessment Activities

Soil assessment activities were performed at the Site during March and April 2018 by COG, LLC (NTGE) to determine the horizontal and vertical extent of the release area. Six sample locations were assessed inside the impacted area ranging from 0 to 4 feet bgs. Sample locations AH-1 through AH-4 were assessed with a hand auger on March 15, 2018 to determine initial impacts inside the tank battery. On April 17, 2018, BH-1 and BH-2 were installed inside the battery with a geoprobe to a depth of 4 feet bgs to obtain further vertical delineation. The assessment activities and associated analytical soil sample results are detailed in the *"Deferment* Report" submitted by COG to the NMOCD (see **Appendix C**) on June 27, 2018. All vertical delineation and assessment analytical results from those activities are provided in **Table 1.**

On May 2, 2023 the NMOCD rejected the COG deferral request stating additional horizontal delineation is needed to ensure the release did not extend to areas that are not reasonably needed for production operations.

3.3 Subsequent Assessment Activities

Per NMOCD request, Arcadis conducted additional assessment activities inclusive of installation of horizontal delineation borings on October 10, 2023. Four (4) soil samples were collected with a hand auger outside of the impacted area to the north, south, east, and west of the previously sampled area (refer to **Figure 2**). Photographic documentation of the assessment activities is contained in the **2023 Soil Assessment Photographic Log**.

4 Closure Criteria for Soils Impacted by a Release

Per Table I of New Mexico Administrative Code (NMAC) part 19.15.29.12, the following closure criteria apply to a Site with depth to ground water less than 50 feet bgs and no documented water wells within ½ mile of the site:

Constituent	Limit (mg/kg)
Chloride	600 mg/kg
TPH (GRO+DRO+MRO)	100 mg/kg
BTEX (total)	50 mg/kg
Benzene	10 mg/kg

4.1 Chloride

All soil samples collected (S-1 through S-4) within the subsequently assessed areas were reported below the NMAC reclamation limit of 600 mg/kg for chloride.

4.2 TPH

Total petroleum hydrocarbons (total TPH -gasoline range organics [GRO] + diesel range organics [DRO]+ motor oil range organics [MRO]) were not reported in soil at concentrations above laboratory detection limits and/or the NMAC screening standard of 100 mg/kg within the horizonal delineation samples collected.

4.3 BTEX

Benzene and total BTEX soil concentrations were reported below the NMAC standards of 10 mg/kg and 50 mg/kg respectively at all horizontal delineation sample locations.

All horizontal delineation soil samples collected were reported with analytical concentrations below the NMAC reclamation limits for chloride, total TPH (GRO, DRO and MRO), total BTEX, and benzene for a site with groundwater less than 50 feet bgs. For reference, analytical soil sample results from the subsequent horizontal delineation activities are summarized in **Table 2**.

5 Summary

Analytical results associated with recent assessment activities conducted in 2018 and 2023 indicate that the horizontal extent of chloride, TPH, and BTEX impact in soil above NMAC Closure Criteria for a site with depth the groundwater less than 50 feet bgs have been delineated as requested by NMOCD. All impacted areas are shown to be contained inside of an active lined tank battery necessary for production operations.

6 Deferral Request

Assessment activities were conducted in accordance with the NMOCD stipulations for accessible impacted areas at the Site. Laboratory analytical results from soil samples collected confirm horizontal delineation of concentrations of BTEX, TPH and chloride to below applicable NMOCD Closure Criteria.

Impacted soil currently remains in-situ near the historical AH-1, AH-2, AH-3, and AH-4 sampling locations inside the tank battery within the bermed area on the pad. Analytical results for soil samples collected indicate that impact to soil is confined to soils only within the bermed area necessary for production operations. The remaining in-situ impacted area is horizontally and vertically delineated and excavation activities within the bermed area would pose a safety risk and require major facility deconstruction. Leaving the remaining impacted soil in-situ is not believed a risk to human health, the environment, or ground water.

As such, a deferral request for additional remediation of in-situ soil impacts measuring approximately 100 feet by 20 feet within the bermed and lined area of the tank battery is requested at this time. Approximately 2,000 square feet and 296 cubic yards will be remediated during site restoration activities that will be conducted following abandonment of this facility at a future date in accordance with Sections 19.15.29.12 and 19.15.29.13 NMAC.

The lease is currently owned by Spur Energy Partners, LLC (Spur Energy). Correspondence between Spur Energy and COG (now ConocoPhillips) documenting acceptance by Spur Energy as the current operator to allow deferral until facility abandonment and reclamation in conjunction with discussions with the NMOCD is displayed in **Appendix E**.

Based upon the findings presented in this report, no additional soil assessment activities are recommended at this time to further delineate the BTEX, TPH, and chloride impacts in soil at the Site. As such, Arcadis, on behalf of ConocoPhillips, respectfully requests deferral of Incident number nOY1732453631 until the facility is abandoned and site reclamation activities are conducted.

Tables

Table 1
ANALYTICAL RESULTS
COG

Sample ID	Date	Chloride mg/Kg	Benzene mg/Kg	BTEX mg/Kg	TPH mg/Kg
AH-1 0 '	3/15/2018	2,130	53.1	513	10,900
AH-1 1'	3/15/2018	1,470	4.48	192	8,910
AH-1 2'	3/15/2018	38.9	28.6	442	13,000
AH-1 3'	3/15/2018	158	1.63	131	4,010
AH-1 4'	3/15/2018	727	3.66	114	4,860
AH-2 0'	3/15/2018	2,170	69.3	816	36,900
AH-2 1'	3/15/2018	7.78	101	728	27,600
AH-2 2'	3/15/2018	140	32.2	323	14,500
AH-2 3'	3/15/2018	304	33.0	357	14,400
AH-2 3.5'	3/15/2018	228	41.8	531	13,900
AH-3 0'	3/15/2018	381	33.4	555	17,500
AH-3 1'	3/15/2018	17.2	38.4	541	7,610
AH-3 2'	3/15/2018	<5.00	0.569	42.4	1,180
AH-3 3'	3/15/2018	<5.00	28.8	420	7,760
AH-3 4'	3/15/2018	<4.99	8.64	182	5,250
AH-4 0'	3/15/2018	385	58.4	689	34,400
AH-4 1'	3/15/2018	39.2	3.92	207	11,400
AH-4 2'	3/15/2018	9.15	6.33	324	13,300
AH-4 3'	3/15/2018	34.5	5.69	256	12,800
BH-1 4'	4/17/2018	78.5	<0.050	<0.300	<10.0
BH-2 4'	4/17/2018	<10.0	<0.050	<0.300	<10.0

Table 2
2023 Soil Analytical Results
MC Federal #014
COG (ConocoPhillips)

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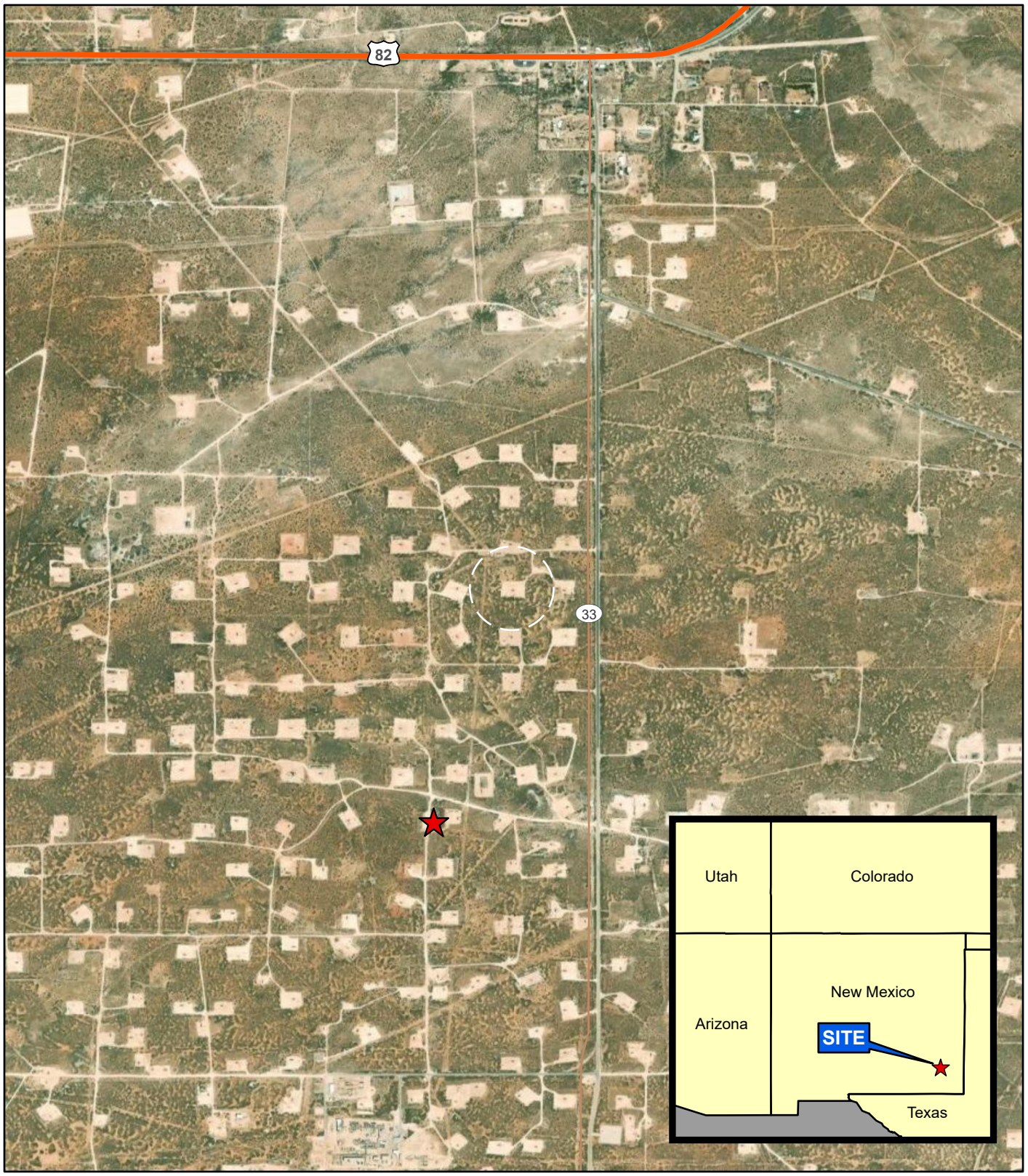
			BTEX Methods							TPH Methods				CI Method
Sample ID	Date	Depth (Feet)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	m-Xylene & p-Xylene (mg/kg)	o-Xylene (mg/kg)	Xylenes, Total (mg/kg)	Total BTEX (mg/kg)	GRO C6-C10 (mg/kg)	DRO C10-C28 (mg/kg)	ORO C28-C36 (mg/kg)	Total TPH (mg/kg)	Chloride, Dissolved (mg/kg)
S-1-101023	10/10/2023	0-1	<0.000383	<0.000453	<0.000562	<0.00100	<0.000342	<0.00100	<0.00100	21.7J	15.9J	<15.1	37.6J	94.0
S-2-101023	10/10/2023	0-1	<0.000384	<0.000455	<0.000564	<0.00101	<0.000343	<0.00101	<0.00101	<15.2	36.2J	<15.2	36.2J	82.5
S-3-101023	10/10/2023	0-1	<0.000387	<0.000459	<0.000568	<0.00102	0.00782	0.00782	0.00782	21.3J	22.7J	<15.1	44.0J	93.1
S-4-101023	10/10/2023	0-1	<0.000387	<0.000458	<0.000567	<0.00101	0.000389J	<0.00101	<0.00101	16.7J	16.3J	<15.0	33.0J	98.2
NMOCD Reclamation Standard			**10**	- -	- -	- -	- -	- -	**50**	- -	- -	- -	**100**	**600**
NMOCD Closure Criteria			**10**	- -	- -	- -	- -	- -	**50**	- -	- -	- -	**2,500**	**10,000**

Legend:
Analytes exceedng NMAC standards are indicated in **bold**
J: Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
'<' indicates the analyte was not detected at or above the Method Detection Limit (MDL)
mg/kg: Milligram per Kilogram
BTEX : Benzene, Toluene, Ethylbenzene, and Total Xylenes
NMAC : New Mexico Administration Code
TPH GRO: Total Petroleum Hydrocarbons Gasoline Range Organics
TPH DRO: Total Petroleum Hydrocarbon Diesel Range Organics
TPH ORO: Total Petroluem Hydrocarbons Oil Range Organics
bgs: Below ground surface
Notes:
1. Chloride analyzed by EPA Method 300
2. TPH analyzed by EPA Method 8015 M
3. BTEX analyzed by EPA Method 8260B
4. Closure Criteria New Mexico Administrative Code 19.15.29.12.E(2)
NMOCD: New Mexico Oild Conservation Division
--: No individual standard

Figures



Legend

Site Location

NOTES:
Datum: D_WGS_1984
Source: ESRI Online
Site Location: 32.826445°, -103.769132°

0 2,000 4,000 Feet

GRAPHIC SCALE

COG (CONOCOPHILLIPS)
MC FED #014
LEA COUNTY, NEW MEXICO

SITE LOCATION MAP

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FIGURE 1

City: Houston Div/Group: Remediation West -Air Group Created By: W Berry Last Saved By: wberry ; Client (Project #)
T:_EHSS\ArcGIS_Pro\Land\COG_COP\NM\MC_Federal_014\MC_Federal_014.aprx 1/12/2024 10:01 AM

LEGEND:

- Assessment Sample Locations
- Historical Assessment Sample Locations

0 50 100 Feet

GRAPHIC SCALE

NOTE:

1. Imagery Source: Google Earth

11/2/2017

32.826445°, -103.769132

COG (CONOCOPHILLIPS)
MC FED #014
LEA COUNTY, NEW MEXICO

Assessment Sample Locations

ARCADIS

FIGURE
2

City: Houston DivGroup: Remediation West-Air Group Created By: W.Berry Last Saved By: wberry Client (Project #)
T:_EHSS\ArcGIS_Pro\Land\COG_COP\NM\MC_Federal_014\MC_Federal_014.aprx 1/12/2024 10:01 AM

Photographic Log

ARCADIS

PHOTOGRAPHIC LOG

Property Name:	Location:	Case No.
MC Fed #014	Lea County, NM	nOY1732453631

Photo No.	Date:
1	10/10/2023

Direction Photo Taken:

SE

32.8264313, -103.7694473

Description:

Tank battery and lined area (impacted area)

ARCADIS

PHOTOGRAPHIC LOG

Property Name:	Location:	Case No.
MC Fed #014	Lea County, NM	nOY1732453631

Photo No.	Date:
2	10/10/2023

Direction Photo Taken:

NE

32.826564, -103.769271

Description:

Battery and lined area

ARCADIS

PHOTOGRAPHIC LOG

Property Name:	Location:	Case No.
MC Fed #014	Lea County, NM	nOY1732453631

Photo No.	Date:
3	10/10/2023

Direction Photo Taken:

NE

32.826626, -103.769215

Description:

N of Battery

Appendix A

Initial C-141 Form Incident # nOY1732453631

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 #229137)	Contact: **Robert McNeill**
Address: **600 West Illinois Avenue, Midland TX 79701**	Telephone No. **432-683-7443**
Facility Name: MC Federal #014	Facility Type: Tank Battery

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-025-38738

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	21	17S	32E	330	North	2010	East	Lea

Latitude: 32.8264313 **Longitude:**-103.7694473 NAD83

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 30bbbls	Volume Recovered: 29bbls
Source of Release: Circulating pump line piping	Date and Hour of Occurrence: 11-19-2017 8:00am	Date and Hour of Discovery: 11-19-2017 8:00am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Yu / Ms. Tucker	
By Whom? Rebecca Haskell	Date and Hour: 11-19-2017 2:45PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Circulating line piping developed a hole. Isolated pipe with hole and replacing with new piece of piping.

Describe Area Affected and Cleanup Action Taken.*

The release occurred within the lined facility. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area evaluated for 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:	OIL CONSERVATION DIVISION	
Printed Name: Aaron Lieb	Approved by Environmental Specialist:	
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: alieb@concho.com	Conditions of Approval:	Attached ☐
Date: 11/20/2017 Phone: 575-748-1553		

* Attach Additional Sheets If Necessary

Appendix B

Site Characterization Data

Groundwater Determination Map

Ruler

Line | Path | Polygon | Circle | 3D path | 3D polygon

Measure the distance between two points on the ground

Map Length: 1.08 Miles
Ground Length: 1.08
Heading: 193.49 degrees

Mouse Navigation | Save | Clear

Head east toward Majamar Rd

Turn right onto Majamar Rd

N32.825°

W103.795° W103.785° W103.775° W103.765° W103.755° W103.745°

126 126A

N32.815°

Turn right at the 1st cross street

Turn right

N32.805°

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 Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
RA 12042 POD1			LE	2	2	1	28	17S	32E	614891	3631181	1469	400		
RA 10175			LE		2	1	28	17S	32E	614814	3631005*	1657	158		
RA 12020 POD1			LE	2	2	1	28	17S	32E	614828	3630954	1703	120	81	39
RA 08855			LE	4	1	1	10	17S	32E	616061	3635742*	3241	158		
RA 09505			LE	2	2	1	10	17S	32E	616462	3635944	3559	147		
L 13050 POD1		L	LE	2	2	1	10	17S	32E	616463	3635945*	3559	156	132	24
RA 09505 S			LE	2	2	1	10	17S	32E	616463	3635945*	3559	144		
RA 11734 POD1			LE	2	2	1	10	17S	32E	616556	3635929	3579	165		
RA 11684 POD1			LE	1	1	4	11	17S	32E	618216	3635124	3923	275		
L 04021 POD3		L	LE		3	4	03	17S	32E	616761	3636252*	3956	247		
RA 11684 POD5			LE	3	1	4	11	17S	32E	618353	3635047	3982	275		
L 13047 POD1		L	LE				11	17S	32E	618187	3635254*	3986	140		
RA 11911 POD1			LE	1	3	1	24	17S	32E	619192	3632296	4007	35		
RA 11684 POD2			LE	1	1	4	11	17S	32E	618313	3635248	4077	275		
RA 11684 POD3			LE	3	3	1	11	17S	32E	618262	3635371	4119	275		
L 04021 S		L	LE	2	4	4	03	17S	32E	617262	3636354*	4268	260		
RA 11684 POD4			LE	1	3	2	11	17S	32E	618334	3635521	4274	275		
L 04020		L	LE	3	3	4	02	17S	32E	618268	3636166*	4692	200		
L 04019		L	LE	4	3	4	02	17S	32E	618468	3636166*	4825	182		
L 04021	R	L	LE	3	4	4	02	17S	32E	618670	3636170*	4967	190		

***UTM location was derived from PLSS - see Help**

Average Depth to Water: **106 feet**

Minimum Depth: **81 feet**

Maximum Depth: **132 feet**

Record Count: 20

Basin/County Search:

County: Lea

UTMNAD83 Radius Search (in meters):

Easting (X): 615197 **Northing (Y):** 3632618 **Radius:** 5000

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	RA 12020 POD1	2	2	1	28	17S	32E	614828	3630954

Driller License: 1456 **Driller Company:** WHITE DRILLING COMPANY

Driller Name: WHITE, JOHN (LD)

Drill Start Date: 09/24/2013 **Drill Finish Date:** 09/25/2013 **Plug Date:**

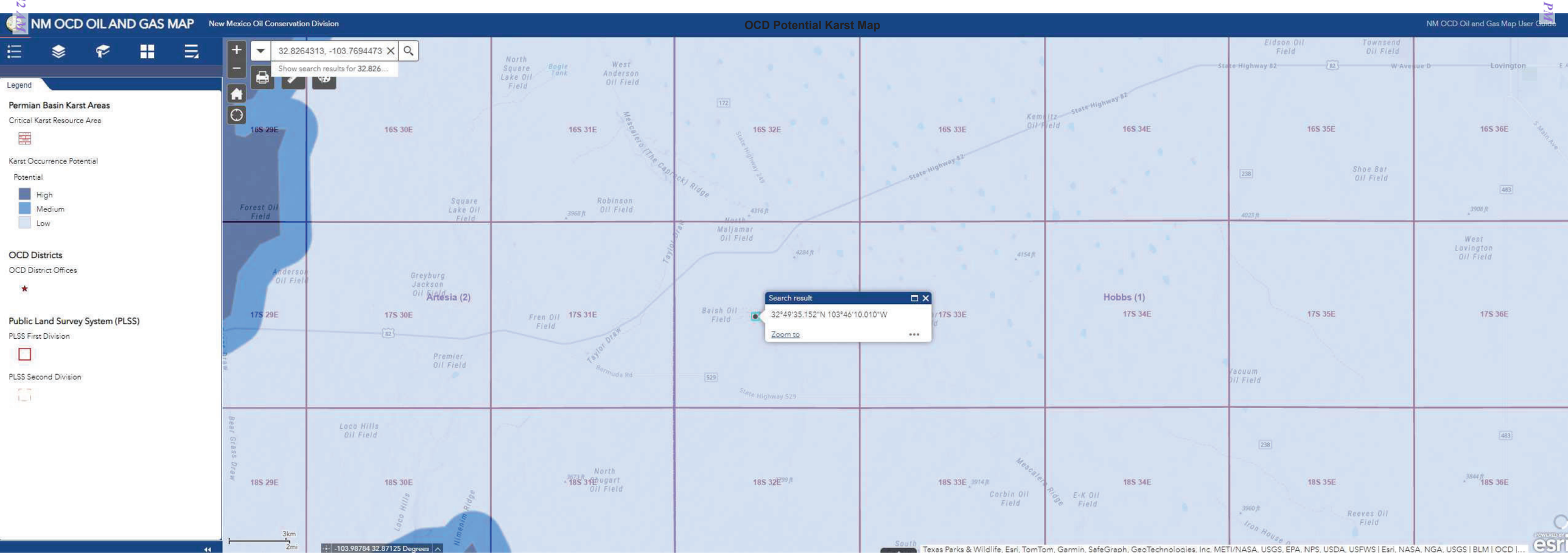
Log File Date: 10/07/2013 **PCW Rcv Date:** **Source:** Shallow

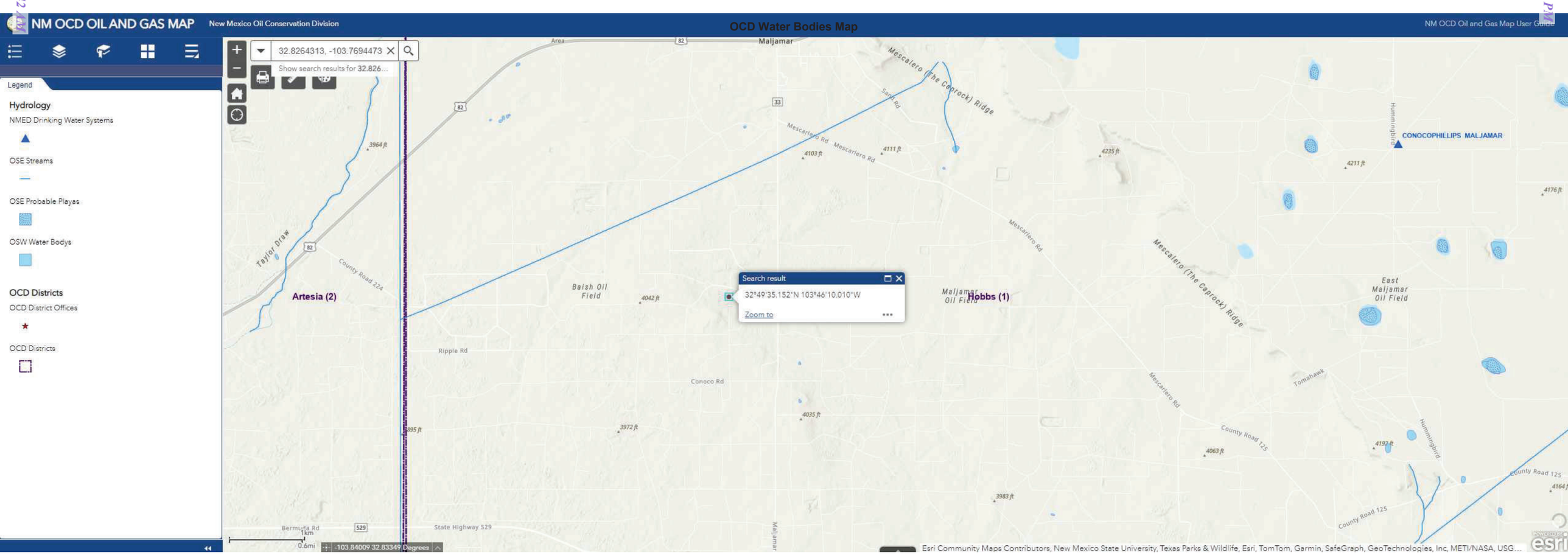
Pump Type: **Pipe Discharge Size:** **Estimated Yield:**

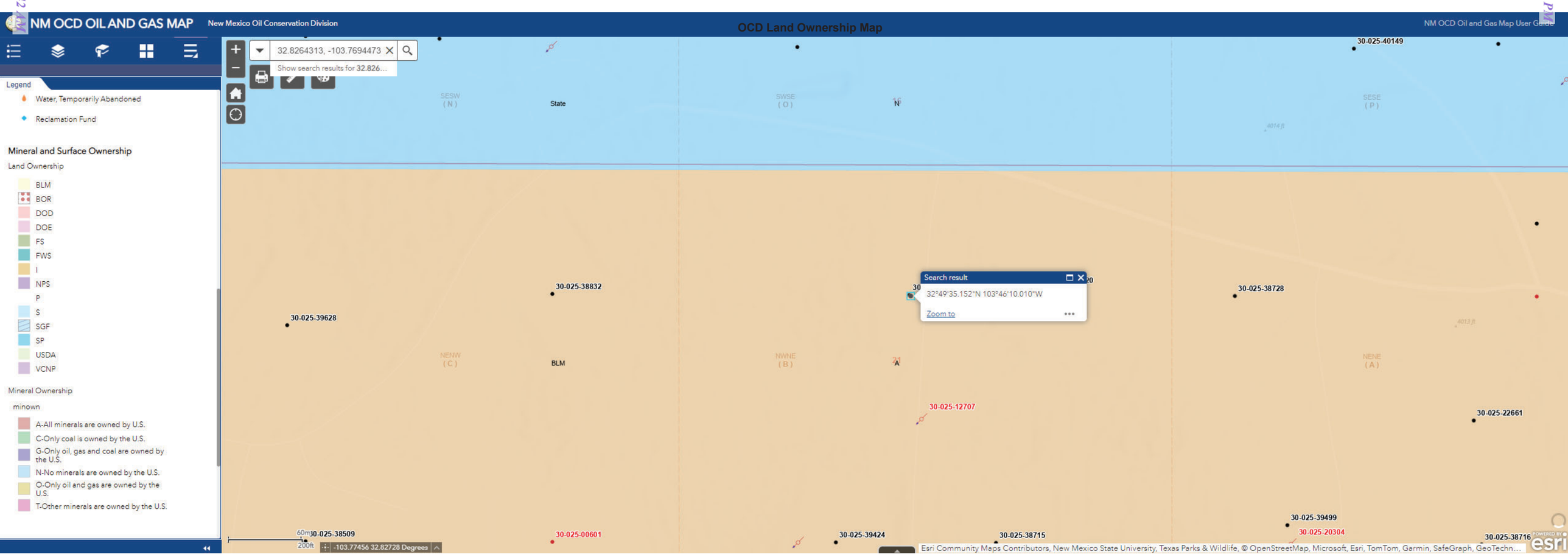
Casing Size: 2.00 **Depth Well:** 120 feet **Depth Water:** 81 feet

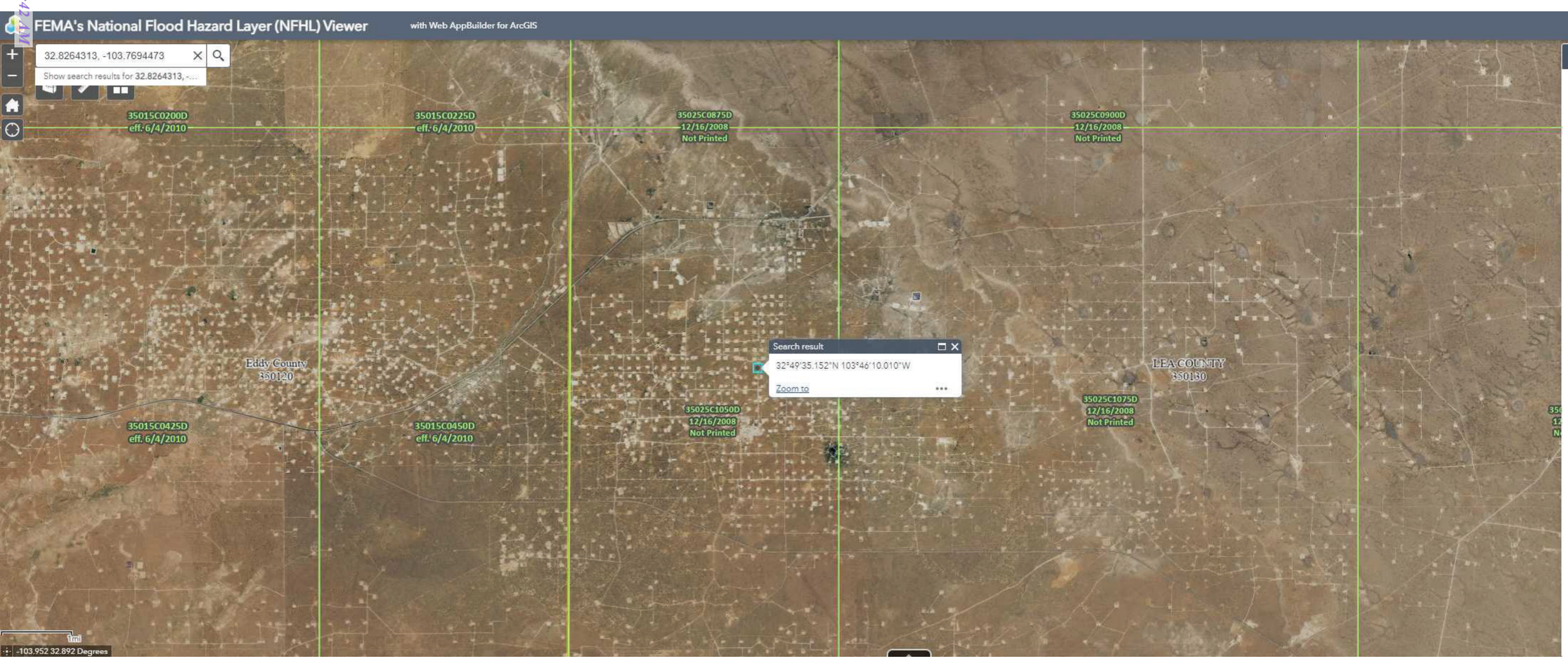
Water Bearing Stratifications:	Top	Bottom	Description
	70	111	Sandstone/Gravel/Conglomerate
	111	120	Shale/Mudstone/Siltstone

Casing Perforations:	Top	Bottom
	75	110









Appendix C

2018 COG Deferment Report

[Sheldon L. Hitchcock]
[HSE Coordinator]

June 27, 2018

Olivia Yu
Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM 88240

Shelly Tucker
Bureau of Land Management, CFO
620 E. Green Street
Carlsbad, NM 88220

Re: Deferral Request Letter
MC Federal #014
API #: 30-025-38738
Tracking #: nOY1732453631
Unit Letter B Section 21, Township 17S, Range 32E
Lea County, NM

Ms. Yu/Ms. Tucker,

COG Operating, LLC (COG) is pleased to submit for your consideration the following deferral request for the MC Federal #014. This plan is in response to an oil release that occurred on November 19, 2017. Subsequent to the release a C-141 initial report was submitted to the New Mexico Oil Conservation Division (NMOCD) and the Bureau of Land Management (BLM) on November 20, 2017. Background information, laboratory results, and a deferral request are submitted herein.

BACKGROUND

The MC Federal #014 release is located in Unit Letter B, Section 21, Township 17 South, and Range 32 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.8264313 North and -103.7694473 West.

On November 19, 2017, the circulating line piping developed a hole resulting in the release of approximately thirty (30) barrels (bbls) of oil. The fluid was released into the lined containment and twenty-nine (29) bbls were recovered. Upon inspection of the lined containment it was determined that the liner did not have integrity to contain free fluids due to holes being cut in the liner to access the manways in the back of the tanks.

On March 15, 2018, a site assessment and soil sampling were conducted utilizing a hand auger in order to define the impacted area. Following receipt of analytical results from the initial sampling

event it was determined that further vertical delineation would be required. A geoprobe was mobilized to obtain further vertical delineation samples. Due to limited access because of terrain and infrastructure it was not possible to place the geoprobe borings in the same locations as the auger holes. Two borings were advanced with the geoprobe in accessible areas that gave the best possible representation of the impacted area. A site diagram is included in Appendix I. The analytical results from the soil sampling activities are summarized in the table below.

GROUNDWATER AND SITE RANKING

According to the New Mexico Office of the State Engineer (NMOSE) groundwater in the project vicinity is approximately eighty-one (81) 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 ten (10) based on the following:

Depth to groundwater	50-100-feet
Distance to surface water body	>1000-feet
Wellhead Protection Area	>1000-feet

ANALYTICAL RESULTS

Sample ID	Date	Chloride mg/Kg	Benzene mg/Kg	BTEX mg/Kg	TPH mg/Kg
AH-1 0 '	3/15/2018	2,130	53.1	513	10,900
AH-1 1'	3/15/2018	1,470	4.48	192	8,910
AH-1 2'	3/15/2018	38.9	28.6	442	13,000
AH-1 3'	3/15/2018	158	1.63	131	4,010
AH-1 4'	3/15/2018	727	3.66	114	4,860
AH-2 0'	3/15/2018	2,170	69.3	816	36,900
AH-2 1'	3/15/2018	7.78	101	728	27,600
AH-2 2'	3/15/2018	140	32.2	323	14,500
AH-2 3'	3/15/2018	304	33.0	357	14,400
AH-2 3.5'	3/15/2018	228	41.8	531	13,900
AH-3 0'	3/15/2018	381	33.4	555	17,500
AH-3 1'	3/15/2018	17.2	38.4	541	7,610
AH-3 2'	3/15/2018	<5.00	0.569	42.4	1,180
AH-3 3'	3/15/2018	<5.00	28.8	420	7,760
AH-3 4'	3/15/2018	<4.99	8.64	182	5,250
AH-4 0'	3/15/2018	385	58.4	689	34,400
AH-4 1'	3/15/2018	39.2	3.92	207	11,400
AH-4 2'	3/15/2018	9.15	6.33	324	13,300
AH-4 3'	3/15/2018	34.5	5.69	256	12,800
BH-1 4'	4/17/2018	78.5	<0.050	<0.300	<10.0
BH-2 4'	4/17/2018	<10.0	<0.050	<0.300	<10.0

PROPOSED REMEDIAL ACTIONS

The exposed area behind the tanks where the liner was removed will be hand excavated to the maximum depth safely feasible. The excavated areas will be backfilled with bentonite hole-plug in order to stabilize the remaining soil impacts and prevent further infiltration through the damaged areas in the liner. The affected areas of the liner will also be repaired to further encapsulate the affected soil and to mitigate the potential impacts from future releases.

DEFERRAL REQUEST

Due to the infrastructure present at this location further excavation and soil assessment activities are not feasible without threatening the structural integrity of the surrounding equipment and the safety of personnel. COG Operating, LLC respectfully requests that any further remedial activities be deferred until abandonment of the facility.

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

Sincerely,

Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

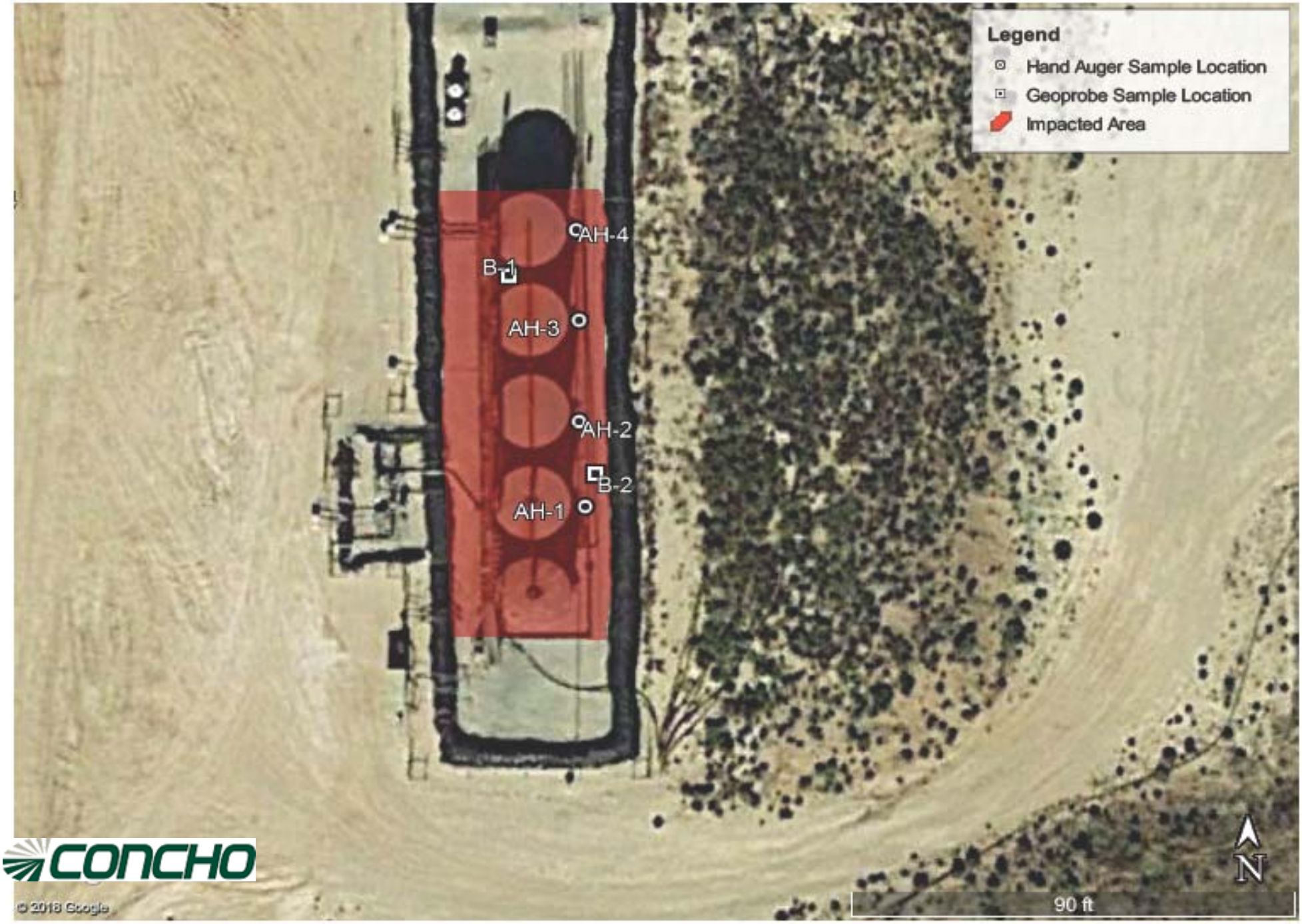
Enclosed:

Appendix I: Site Diagram
Appendix II: Groundwater Data
Appendix III: Initial C-141 (Copy)
Appendix IV: Analytical Reports and Chain-of-Custody Forms

APPENDIX I

November 19, 2017

MC Federal #014



CONCHO

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
RA 12042 POD1			LE	2	2	1	28	17S	32E	614891	3631181	1469	400		
RA 10175			LE		2	1	28	17S	32E	614814	3631005*	1657	158		
RA 12020 POD1			LE	2	2	1	28	17S	32E	614828	3630954	1703	120	81	39
RA 08855			LE	4	1	1	10	17S	32E	616061	3635742*	3241	158		
RA 09505			LE	2	2	1	10	17S	32E	616462	3635944	3559	147		
L 13050 POD1		L	LE	2	2	1	10	17S	32E	616463	3635945*	3559	156	132	24
RA 09505 S			LE	2	2	1	10	17S	32E	616463	3635945*	3559	144		
RA 11734 POD1			LE	2	2	1	10	17S	32E	616556	3635929	3579	165		
RA 11684 POD1			LE	1	1	4	11	17S	32E	618216	3635124	3923	275		
L 04021 POD3		L	LE		3	4	03	17S	32E	616761	3636252*	3956	247		
RA 11684 POD5			LE	3	1	4	11	17S	32E	618353	3635047	3982	275		
L 13047 POD1		L	LE				11	17S	32E	618187	3635254*	3986	140		
RA 11911 POD1			LE	1	3	1	24	17S	32E	619192	3632296	4007	35		
RA 11684 POD2			LE	1	1	4	11	17S	32E	618313	3635248	4077	275		
RA 11684 POD3			LE	3	3	1	11	17S	32E	618262	3635371	4119	275		
L 04021 S		L	LE	2	4	4	03	17S	32E	617262	3636354*	4268	260		
RA 11684 POD4			LE	1	3	2	11	17S	32E	618334	3635521	4274	275		
L 04020		L	LE	3	3	4	02	17S	32E	618268	3636166*	4692	200		
L 04019		L	LE	4	3	4	02	17S	32E	618468	3636166*	4825	182		
L 04021	R	L	LE	3	4	4	02	17S	32E	618670	3636170*	4967	190		

***UTM location was derived from PLSS - see Help**

Average Depth to Water: **106 feet**

Minimum Depth: **81 feet**

Maximum Depth: **132 feet**

Record Count: 20

Basin/County Search:

County: Lea

UTMNAD83 Radius Search (in meters):

Easting (X): 615197 **Northing (Y):** 3632618 **Radius:** 5000

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 #229137)	Contact: **Robert McNeill**
Address: **600 West Illinois Avenue, Midland TX 79701**	Telephone No. **432-683-7443**
Facility Name: MC Federal #014	Facility Type: Tank Battery

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-025-38738

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	21	17S	32E	330	North	2010	East	Lea

Latitude: 32.8264313 **Longitude:**-103.7694473 NAD83

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 30bbbls	Volume Recovered: 29bbls
Source of Release: Circulating pump line piping	Date and Hour of Occurrence: 11-19-2017 8:00am	Date and Hour of Discovery: 11-19-2017 8:00am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Yu / Ms. Tucker	
By Whom? Rebecca Haskell	Date and Hour: 11-19-2017 2:45PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 2:52 pm, Nov 20, 2017

Describe Cause of Problem and Remedial Action Taken.*

Circulating line piping developed a hole. Isolated pipe with hole and replacing with new piece of piping.

Describe Area Affected and Cleanup Action Taken.*

The release occurred within the lined facility. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area evaluated for 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:

Printed Name: Aaron Lieb

Title: Senior HSE Coordinator

E-mail Address: alieb@concho.com

Date: 11/20/2017 Phone: 575-748-1553

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 11/20/2017 Expiration Date:

Conditions of Approval:

Please inspect liner in question. Provide NMOCD with a concise report of the inspection with affirmation the liner has and will continue to contain liquids.

Attached ☐

nOY1732453631

* Attach Additional Sheets If Necessary

APPENDIX IV

Certificate of Analysis Summary 579572

COG Operating LLC, Artesia, NM

Project Name: MC Federal #14 Battery

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea County

Date Received in Lab: Mon Mar-19-18 08:00 am

Report Date: 26-MAR-18

Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	579572-001		579572-002		579572-003		579572-004		579572-005		579572-006	
	Field Id:	AH-1'		AH-1		AH-1		AH-1		AH-1		AH-2	
	Depth:			1- ft		2- ft		3- ft		4- ft		0- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Mar-22-18 17:15		Mar-22-18 17:15		Mar-22-18 17:15		Mar-22-18 17:15		Mar-22-18 17:15		Mar-22-18 08:30	
	Analyzed:	Mar-23-18 10:53		Mar-23-18 11:12		Mar-23-18 11:32		Mar-23-18 15:03		Mar-23-18 15:22		Mar-22-18 11:47	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		53.1	1.00	4.48	1.98	28.6	2.02	1.63	1.00	3.66	1.99	69.3	1.99
Toluene		172	1.00	43.0	1.98	109	2.02	15.7	1.00	23.3	1.99	291	1.99
Ethylbenzene		112	1.00	52.3	1.98	112	2.02	39.0	1.00	30.9	1.99	133	1.99
m,p-Xylenes		119	2.00	66.1	3.96	139	4.03	53.5	2.00	39.8	3.98	226	3.98
o-Xylene		57.2	1.00	26.4	1.98	53.6	2.02	21.1	1.00	15.9	1.99	96.9	1.99
Total Xylenes		176	1.00	92.5	1.98	193	2.02	74.6	1.00	55.7	1.99	323	1.99
Total BTEX		513	1.00	192	1.98	442	2.02	131	1.00	114	1.99	816	1.99
Chloride by EPA 300	***Extracted:***	Mar-20-18 13:00		Mar-20-18 13:00		Mar-20-18 18:00		Mar-20-18 18:00		Mar-20-18 18:00		Mar-20-18 18:00	
	Analyzed:	Mar-20-18 15:55		Mar-20-18 16:00		Mar-20-18 22:14		Mar-20-18 22:19		Mar-20-18 22:35		Mar-20-18 22:40	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2130	25.0	1470	25.0	38.9	4.99	158	4.99	727	4.99	2170	25.0
TPH By SW8015 Mod	***Extracted:***	Mar-22-18 15:00		Mar-22-18 15:00		Mar-22-18 15:00		Mar-22-18 15:00		Mar-22-18 15:00		Mar-20-18 17:00	
	Analyzed:	Mar-23-18 09:34		Mar-23-18 10:01		Mar-23-18 10:28		Mar-23-18 10:55		Mar-23-18 11:22		Mar-21-18 04:28	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		1040	74.9	1630	74.9	2910	74.9	961	75.0	1600	74.9	3680	150
Diesel Range Organics (DRO)		9090	74.9	6670	74.9	9370	74.9	2820	75.0	3050	74.9	28000	150
Oil Range Hydrocarbons (ORO)		784	74.9	614	74.9	695	74.9	233	75.0	213	74.9	5200	150
Total TPH		10900	74.9	8910	74.9	13000	74.9	4010	75.0	4860	74.9	36900	150

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Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analysis Summary 579572

COG Operating LLC, Artesia, NM

Project Name: MC Federal #14 Battery

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea County

Date Received in Lab: Mon Mar-19-18 08:00 am

Report Date: 26-MAR-18

Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	579572-007		579572-008		579572-009		579572-010		579572-011		579572-012	
	Field Id:	AH-2		AH-2		AH-2		AH-2		AH-3		AH-3	
	Depth:	1- ft		2- ft		3- ft		3.5- ft		0- ft		1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Mar-22-18 08:30		Mar-22-18 08:30		Mar-22-18 08:30		Mar-22-18 08:30		Mar-22-18 08:30		Mar-22-18 08:30	
	Analyzed:	Mar-22-18 14:40		Mar-22-18 14:02		Mar-22-18 14:21		Mar-22-18 14:59		Mar-22-18 15:24		Mar-22-18 15:43	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		101	4.03	32.2	2.01	33.0	1.99	41.8	2.00	33.4	2.02	38.4	1.00
Toluene		131	4.03	5.56	2.01	4.02	1.99	34.3	2.00	195	2.02	134	1.00
Ethylbenzene		183	4.03	103	2.01	116	1.99	160	2.00	104	2.02	140	1.00
m,p-Xylenes		220	8.06	132	4.02	149	3.98	213	3.99	148	4.03	165	2.00
o-Xylene		92.6	4.03	49.8	2.01	54.5	1.99	81.9	2.00	74.2	2.02	63.7	1.00
Total Xylenes		313	4.03	182	2.01	204	1.99	295	2.00	222	2.02	229	1.00
Total BTEX		728	4.03	323	2.01	357	1.99	531	2.00	555	2.02	541	1.00
Chloride by EPA 300	***Extracted:***	Mar-20-18 18:00		Mar-20-18 18:00		Mar-20-18 18:00		Mar-20-18 18:00		Mar-20-18 18:00		Mar-20-18 18:00	
	Analyzed:	Mar-20-18 22:56		Mar-20-18 23:02		Mar-20-18 23:07		Mar-20-18 23:12		Mar-20-18 23:17		Mar-20-18 23:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		7.78	4.99	140	5.00	304	5.00	228	5.00	381	4.99	17.2	5.00
TPH By SW8015 Mod	***Extracted:***	Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00	
	Analyzed:	Mar-21-18 05:27		Mar-21-18 05:46		Mar-21-18 06:06		Mar-21-18 06:25		Mar-21-18 06:45		Mar-21-18 07:04	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		9170	149	4680	74.7	5060	74.9	4290	74.8	4700	74.9	2590	74.9
Diesel Range Organics (DRO)		16500	149	8780	74.7	8250	74.9	8480	74.8	11100	74.9	4510	74.9
Oil Range Hydrocarbons (ORO)		1930	149	1070	74.7	1070	74.9	1090	74.8	1700	74.9	512	74.9
Total TPH		27600	149	14500	74.7	14400	74.9	13900	74.8	17500	74.9	7610	74.9

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Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analysis Summary 579572

COG Operating LLC, Artesia, NM

Project Name: MC Federal #14 Battery

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea County

Date Received in Lab: Mon Mar-19-18 08:00 am

Report Date: 26-MAR-18

Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	579572-013		579572-014		579572-015		579572-016		579572-017		579572-018	
	Field Id:	AH-3		AH-3		AH-3		AH-4		AH-4		AH-4	
	Depth:	2- ft		3- ft		4- ft		0- ft		1- ft		2- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00		Mar-15-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Mar-22-18 08:30		Mar-22-18 08:30		Mar-22-18 08:30		Mar-22-18 08:30		Mar-22-18 17:15		Mar-22-18 17:15	
	Analyzed:	Mar-22-18 16:03		Mar-22-18 16:24		Mar-22-18 16:43		Mar-22-18 17:03		Mar-23-18 09:56		Mar-23-18 10:15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.569	0.0996	28.8	0.994	8.64	0.505	58.4	2.00	3.92	1.99	6.33	2.01
Toluene		2.80	0.0996	31.5	0.994	2.29	0.505	231	2.00	47.1	1.99	55.7	2.01
Ethylbenzene		14.0	0.0996	135	0.994	64.7	0.505	143	2.00	56.5	1.99	94.9	2.01
m,p-Xylenes		17.8	0.199	163	1.99	76.8	1.01	180	3.99	70.9	3.98	121	4.02
o-Xylene		7.23	0.0996	61.5	0.994	29.7	0.505	76.7	2.00	28.6	1.99	46.4	2.01
Total Xylenes		25.0	0.0996	225	0.994	107	0.505	257	2.00	99.5	1.99	167	2.01
Total BTEX		42.4	0.0996	420	0.994	182	0.505	689	2.00	207	1.99	324	2.01
Chloride by EPA 300	***Extracted:***	Mar-20-18 18:00		Mar-21-18 09:00		Mar-21-18 09:00		Mar-21-18 09:00		Mar-21-18 09:00		Mar-21-18 09:00	
	Analyzed:	Mar-20-18 23:28		Mar-21-18 09:17		Mar-21-18 09:33		Mar-21-18 09:38		Mar-21-18 09:44		Mar-21-18 09:49	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		<5.00	5.00	<5.00	5.00	<4.99	4.99	385	5.00	39.2	5.00	9.15	4.99
TPH By SW8015 Mod	***Extracted:***	Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00		Mar-20-18 17:00	
	Analyzed:	Mar-21-18 08:42		Mar-21-18 07:44		Mar-21-18 08:03		Mar-21-18 08:23		Mar-21-18 04:48		Mar-21-18 05:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		267	15.0	2750	74.9	1560	75.0	6430	150	2600	74.9	3270	74.8
Diesel Range Organics (DRO)		823	15.0	4500	74.9	3340	75.0	24300	150	8370	74.9	9660	74.8
Oil Range Hydrocarbons (ORO)		85.0	15.0	509	74.9	347	75.0	3670	150	381	74.9	322	74.8
Total TPH		1180	15.0	7760	74.9	5250	75.0	34400	150	11400	74.9	13300	74.8

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Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Certificate of Analysis Summary 579572

COG Operating LLC, Artesia, NM

Project Name: MC Federal #14 Battery

Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea County

Date Received in Lab: Mon Mar-19-18 08:00 am

Report Date: 26-MAR-18

Project Manager: Jessica Kramer

Analysis Requested								
	Lab Id:	579572-019						
	Field Id:	AH-4						
	Depth:	3- ft						
	Matrix:	SOIL						
	Sampled:	Mar-15-18 00:00						
BTEX by EPA 8021B	***Extracted:***	Mar-22-18 17:15						
	Analyzed:	Mar-23-18 10:35						
	Units/RL:	mg/kg	RL					
Benzene		5.69	2.01					
Toluene		37.8	2.01					
Ethylbenzene		77.6	2.01					
m,p-Xylenes		97.6	4.02					
o-Xylene		37.4	2.01					
Total Xylenes		135	2.01					
Total BTEX		256	2.01					
Chloride by EPA 300	***Extracted:***	Mar-21-18 09:00						
	Analyzed:	Mar-21-18 10:05						
	Units/RL:	mg/kg	RL					
Chloride		34.5	5.00					
TPH By SW8015 Mod	***Extracted:***	Mar-20-18 17:00						
	Analyzed:	Mar-21-18 05:41						
	Units/RL:	mg/kg	RL					
Gasoline Range Hydrocarbons (GRO)		3380	74.9					
Diesel Range Organics (DRO)		9200	74.9					
Oil Range Hydrocarbons (ORO)		240	74.9					
Total TPH		12800	74.9					

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Analytical Report 579572

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

MC Federal #14 Battery

26-MAR-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-18-24), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)

26-MAR-18

Project Manager: **Sheldon Hitchcock**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **579572**
MC Federal #14 Battery
Project Address: Lea County

Sheldon Hitchcock:

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) 579572. 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. 579572 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,

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

Sample Cross Reference 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1'	S	03-15-18 00:00		579572-001
AH-1	S	03-15-18 00:00	1 ft	579572-002
AH-1	S	03-15-18 00:00	2 ft	579572-003
AH-1	S	03-15-18 00:00	3 ft	579572-004
AH-1	S	03-15-18 00:00	4 ft	579572-005
AH-2	S	03-15-18 00:00	0 ft	579572-006
AH-2	S	03-15-18 00:00	1 ft	579572-007
AH-2	S	03-15-18 00:00	2 ft	579572-008
AH-2	S	03-15-18 00:00	3 ft	579572-009
AH-2	S	03-15-18 00:00	3.5 ft	579572-010
AH-3	S	03-15-18 00:00	0 ft	579572-011
AH-3	S	03-15-18 00:00	1 ft	579572-012
AH-3	S	03-15-18 00:00	2 ft	579572-013
AH-3	S	03-15-18 00:00	3 ft	579572-014
AH-3	S	03-15-18 00:00	4 ft	579572-015
AH-4	S	03-15-18 00:00	0 ft	579572-016
AH-4	S	03-15-18 00:00	1 ft	579572-017
AH-4	S	03-15-18 00:00	2 ft	579572-018
AH-4	S	03-15-18 00:00	3 ft	579572-019

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: MC Federal #14 Battery

Project ID:
Work Order Number(s): *579572*

Report Date: *26-MAR-18*
Date Received: *03/19/2018*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3044312 Chloride by EPA 300
Lab Sample ID 579755-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 579572-003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3044566 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3044699 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1'**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-001	Date Collected:	03.15.18 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	LRI	Date Prep:	03.20.18 13.00	Basis:	Wet Weight
Seq Number:	3044292				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2130**	25.0	mg/kg	03.20.18 15.55		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.22.18 15.00	Basis:	Wet Weight
Seq Number:	3044591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**1040**	74.9	mg/kg	03.23.18 09.34		5
Diesel Range Organics (DRO)	C10C28DRO	**9090**	74.9	mg/kg	03.23.18 09.34		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**784**	74.9	mg/kg	03.23.18 09.34		5
Total TPH	PHC635	**10900**	74.9	mg/kg	03.23.18 09.34		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	128	%	70-135	03.23.18 09.34	
o-Terphenyl	84-15-1	120	%	70-135	03.23.18 09.34	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1'**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-001	Date Collected:	03.15.18 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**53.1**	1.00	mg/kg	03.23.18 10.53		500
Toluene	108-88-3	**172**	1.00	mg/kg	03.23.18 10.53		500
Ethylbenzene	100-41-4	**112**	1.00	mg/kg	03.23.18 10.53		500
m,p-Xylenes	179601-23-1	**119**	2.00	mg/kg	03.23.18 10.53		500
o-Xylene	95-47-6	**57.2**	1.00	mg/kg	03.23.18 10.53		500
Total Xylenes	1330-20-7	**176**	1.00	mg/kg	03.23.18 10.53		500
Total BTEX		**513**	1.00	mg/kg	03.23.18 10.53		500

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	03.23.18 10.53	
1,4-Difluorobenzene	540-36-3	100	%	70-130	03.23.18 10.53	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-002	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	SCM			% Moisture:	
Analyst:	LRI	Date Prep:	03.20.18 13.00	Basis:	Wet Weight
Seq Number:	3044292				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1470**	25.0	mg/kg	03.20.18 16.00		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.22.18 15.00	Basis:	Wet Weight
Seq Number:	3044591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**1630**	74.9	mg/kg	03.23.18 10.01		5
Diesel Range Organics (DRO)	C10C28DRO	**6670**	74.9	mg/kg	03.23.18 10.01		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**614**	74.9	mg/kg	03.23.18 10.01		5
Total TPH	PHC635	**8910**	74.9	mg/kg	03.23.18 10.01		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	03.23.18 10.01	
o-Terphenyl	84-15-1	84	%	70-135	03.23.18 10.01	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-002	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**4.48**	1.98	mg/kg	03.23.18 11.12		1000
Toluene	108-88-3	**43.0**	1.98	mg/kg	03.23.18 11.12		1000
Ethylbenzene	100-41-4	**52.3**	1.98	mg/kg	03.23.18 11.12		1000
m,p-Xylenes	179601-23-1	**66.1**	3.96	mg/kg	03.23.18 11.12		1000
o-Xylene	95-47-6	**26.4**	1.98	mg/kg	03.23.18 11.12		1000
Total Xylenes	1330-20-7	**92.5**	1.98	mg/kg	03.23.18 11.12		1000
Total BTEX		**192**	1.98	mg/kg	03.23.18 11.12		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	03.23.18 11.12	
1,4-Difluorobenzene	540-36-3	86	%	70-130	03.23.18 11.12	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-003	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**38.9**	4.99	mg/kg	03.20.18 22.14		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.22.18 15.00	Basis:	Wet Weight
Seq Number:	3044591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**2910**	74.9	mg/kg	03.23.18 10.28		5
Diesel Range Organics (DRO)	C10C28DRO	**9370**	74.9	mg/kg	03.23.18 10.28		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**695**	74.9	mg/kg	03.23.18 10.28		5
Total TPH	PHC635	**13000**	74.9	mg/kg	03.23.18 10.28		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	03.23.18 10.28	
o-Terphenyl	84-15-1	104	%	70-135	03.23.18 10.28	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-003	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**28.6**	2.02	mg/kg	03.23.18 11.32		1000
Toluene	108-88-3	**109**	2.02	mg/kg	03.23.18 11.32		1000
Ethylbenzene	100-41-4	**112**	2.02	mg/kg	03.23.18 11.32		1000
m,p-Xylenes	179601-23-1	**139**	4.03	mg/kg	03.23.18 11.32		1000
o-Xylene	95-47-6	**53.6**	2.02	mg/kg	03.23.18 11.32		1000
Total Xylenes	1330-20-7	**193**	2.02	mg/kg	03.23.18 11.32		1000
Total BTEX		**442**	2.02	mg/kg	03.23.18 11.32		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	80	%	70-130	03.23.18 11.32	
4-Bromofluorobenzene	460-00-4	87	%	70-130	03.23.18 11.32	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-004	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**158**	4.99	mg/kg	03.20.18 22.19		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.22.18 15.00	Basis:	Wet Weight
Seq Number:	3044591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**961**	75.0	mg/kg	03.23.18 10.55		5
Diesel Range Organics (DRO)	C10C28DRO	**2820**	75.0	mg/kg	03.23.18 10.55		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**233**	75.0	mg/kg	03.23.18 10.55		5
Total TPH	PHC635	**4010**	75.0	mg/kg	03.23.18 10.55		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	03.23.18 10.55	
o-Terphenyl	84-15-1	125	%	70-135	03.23.18 10.55	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-004	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**1.63**	1.00	mg/kg	03.23.18 15.03		500
Toluene	108-88-3	**15.7**	1.00	mg/kg	03.23.18 15.03		500
Ethylbenzene	100-41-4	**39.0**	1.00	mg/kg	03.23.18 15.03		500
m,p-Xylenes	179601-23-1	**53.5**	2.00	mg/kg	03.23.18 15.03		500
o-Xylene	95-47-6	**21.1**	1.00	mg/kg	03.23.18 15.03		500
Total Xylenes	1330-20-7	**74.6**	1.00	mg/kg	03.23.18 15.03		500
Total BTEX		**131**	1.00	mg/kg	03.23.18 15.03		500

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89	%	70-130	03.23.18 15.03	
1,4-Difluorobenzene	540-36-3	77	%	70-130	03.23.18 15.03	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-005	Date Collected:	03.15.18 00.00	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**727**	4.99	mg/kg	03.20.18 22.35		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.22.18 15.00	Basis:	Wet Weight
Seq Number:	3044591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**1600**	74.9	mg/kg	03.23.18 11.22		5
Diesel Range Organics (DRO)	C10C28DRO	**3050**	74.9	mg/kg	03.23.18 11.22		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**213**	74.9	mg/kg	03.23.18 11.22		5
Total TPH	PHC635	**4860**	74.9	mg/kg	03.23.18 11.22		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	03.23.18 11.22	
o-Terphenyl	84-15-1	126	%	70-135	03.23.18 11.22	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-1**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-005	Date Collected:	03.15.18 00.00	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**3.66**	1.99	mg/kg	03.23.18 15.22		1000
Toluene	108-88-3	**23.3**	1.99	mg/kg	03.23.18 15.22		1000
Ethylbenzene	100-41-4	**30.9**	1.99	mg/kg	03.23.18 15.22		1000
m,p-Xylenes	179601-23-1	**39.8**	3.98	mg/kg	03.23.18 15.22		1000
o-Xylene	95-47-6	**15.9**	1.99	mg/kg	03.23.18 15.22		1000
Total Xylenes	1330-20-7	**55.7**	1.99	mg/kg	03.23.18 15.22		1000
Total BTEX		**114**	1.99	mg/kg	03.23.18 15.22		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	79	%	70-130	03.23.18 15.22	
1,4-Difluorobenzene	540-36-3	91	%	70-130	03.23.18 15.22	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-006	Date Collected:	03.15.18 00.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2170**	25.0	mg/kg	03.20.18 22.40		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**3680**	150	mg/kg	03.21.18 04.28		10
Diesel Range Organics (DRO)	C10C28DRO	**28000**	150	mg/kg	03.21.18 04.28		10
Oil Range Hydrocarbons (ORO)	PHCG2835	**5200**	150	mg/kg	03.21.18 04.28		10
Total TPH	PHC635	**36900**	150	mg/kg	03.21.18 04.28		10

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	03.21.18 04.28	
o-Terphenyl	84-15-1	111	%	70-135	03.21.18 04.28	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-006	Date Collected:	03.15.18 00.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**69.3**	1.99	mg/kg	03.22.18 11.47		1000
Toluene	108-88-3	**291**	1.99	mg/kg	03.22.18 11.47		1000
Ethylbenzene	100-41-4	**133**	1.99	mg/kg	03.22.18 11.47		1000
m,p-Xylenes	179601-23-1	**226**	3.98	mg/kg	03.22.18 11.47		1000
o-Xylene	95-47-6	**96.9**	1.99	mg/kg	03.22.18 11.47		1000
Total Xylenes	1330-20-7	**323**	1.99	mg/kg	03.22.18 11.47		1000
Total BTEX		**816**	1.99	mg/kg	03.22.18 11.47		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	81	%	70-130	03.22.18 11.47	
4-Bromofluorobenzene	460-00-4	88	%	70-130	03.22.18 11.47	

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MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-007	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7.78**	4.99	mg/kg	03.20.18 22.56		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**9170**	149	mg/kg	03.21.18 05.27		10
Diesel Range Organics (DRO)	C10C28DRO	**16500**	149	mg/kg	03.21.18 05.27		10
Oil Range Hydrocarbons (ORO)	PHCG2835	**1930**	149	mg/kg	03.21.18 05.27		10
Total TPH	PHC635	**27600**	149	mg/kg	03.21.18 05.27		10

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	03.21.18 05.27	
o-Terphenyl	84-15-1	99	%	70-135	03.21.18 05.27	

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COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-007	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**101**	4.03	mg/kg	03.22.18 14.40		2000
Toluene	108-88-3	**131**	4.03	mg/kg	03.22.18 14.40		2000
Ethylbenzene	100-41-4	**183**	4.03	mg/kg	03.22.18 14.40		2000
m,p-Xylenes	179601-23-1	**220**	8.06	mg/kg	03.22.18 14.40		2000
o-Xylene	95-47-6	**92.6**	4.03	mg/kg	03.22.18 14.40		2000
Total Xylenes	1330-20-7	**313**	4.03	mg/kg	03.22.18 14.40		2000
Total BTEX		**728**	4.03	mg/kg	03.22.18 14.40		2000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	03.22.18 14.40	
4-Bromofluorobenzene	460-00-4	103	%	70-130	03.22.18 14.40	

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Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-008	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**140**	5.00	mg/kg	03.20.18 23.02		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**4680**	74.7	mg/kg	03.21.18 05.46		5
Diesel Range Organics (DRO)	C10C28DRO	**8780**	74.7	mg/kg	03.21.18 05.46		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**1070**	74.7	mg/kg	03.21.18 05.46		5
Total TPH	PHC635	**14500**	74.7	mg/kg	03.21.18 05.46		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	03.21.18 05.46	
o-Terphenyl	84-15-1	90	%	70-135	03.21.18 05.46	

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COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-008	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**32.2**	2.01	mg/kg	03.22.18 14.02		1000
Toluene	108-88-3	**5.56**	2.01	mg/kg	03.22.18 14.02		1000
Ethylbenzene	100-41-4	**103**	2.01	mg/kg	03.22.18 14.02		1000
m,p-Xylenes	179601-23-1	**132**	4.02	mg/kg	03.22.18 14.02		1000
o-Xylene	95-47-6	**49.8**	2.01	mg/kg	03.22.18 14.02		1000
Total Xylenes	1330-20-7	**182**	2.01	mg/kg	03.22.18 14.02		1000
Total BTEX		**323**	2.01	mg/kg	03.22.18 14.02		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	78	%	70-130	03.22.18 14.02	
4-Bromofluorobenzene	460-00-4	93	%	70-130	03.22.18 14.02	

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MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-009	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**304**	5.00	mg/kg	03.20.18 23.07		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**5060**	74.9	mg/kg	03.21.18 06.06		5
Diesel Range Organics (DRO)	C10C28DRO	**8250**	74.9	mg/kg	03.21.18 06.06		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**1070**	74.9	mg/kg	03.21.18 06.06		5
Total TPH	PHC635	**14400**	74.9	mg/kg	03.21.18 06.06		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	03.21.18 06.06	
o-Terphenyl	84-15-1	101	%	70-135	03.21.18 06.06	

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MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-009	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**33.0**	1.99	mg/kg	03.22.18 14.21		1000
Toluene	108-88-3	**4.02**	1.99	mg/kg	03.22.18 14.21		1000
Ethylbenzene	100-41-4	**116**	1.99	mg/kg	03.22.18 14.21		1000
m,p-Xylenes	179601-23-1	**149**	3.98	mg/kg	03.22.18 14.21		1000
o-Xylene	95-47-6	**54.5**	1.99	mg/kg	03.22.18 14.21		1000
Total Xylenes	1330-20-7	**204**	1.99	mg/kg	03.22.18 14.21		1000
Total BTEX		**357**	1.99	mg/kg	03.22.18 14.21		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	80	%	70-130	03.22.18 14.21	
4-Bromofluorobenzene	460-00-4	86	%	70-130	03.22.18 14.21	

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Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-010	Date Collected:	03.15.18 00.00	Sample Depth:	3.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**228**	5.00	mg/kg	03.20.18 23.12		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**4290**	74.8	mg/kg	03.21.18 06.25		5
Diesel Range Organics (DRO)	C10C28DRO	**8480**	74.8	mg/kg	03.21.18 06.25		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**1090**	74.8	mg/kg	03.21.18 06.25		5
Total TPH	PHC635	**13900**	74.8	mg/kg	03.21.18 06.25		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	03.21.18 06.25	
o-Terphenyl	84-15-1	101	%	70-135	03.21.18 06.25	

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MC Federal #14 Battery

Sample Id:	**AH-2**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-010	Date Collected:	03.15.18 00.00	Sample Depth:	3.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**41.8**	2.00	mg/kg	03.22.18 14.59		1000
Toluene	108-88-3	**34.3**	2.00	mg/kg	03.22.18 14.59		1000
Ethylbenzene	100-41-4	**160**	2.00	mg/kg	03.22.18 14.59		1000
m,p-Xylenes	179601-23-1	**213**	3.99	mg/kg	03.22.18 14.59		1000
o-Xylene	95-47-6	**81.9**	2.00	mg/kg	03.22.18 14.59		1000
Total Xylenes	1330-20-7	**295**	2.00	mg/kg	03.22.18 14.59		1000
Total BTEX		**531**	2.00	mg/kg	03.22.18 14.59		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	92	%	70-130	03.22.18 14.59	
1,4-Difluorobenzene	540-36-3	82	%	70-130	03.22.18 14.59	

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Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-011	Date Collected:	03.15.18 00.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**381**	4.99	mg/kg	03.20.18 23.17		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**4700**	74.9	mg/kg	03.21.18 06.45		5
Diesel Range Organics (DRO)	C10C28DRO	**11100**	74.9	mg/kg	03.21.18 06.45		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**1700**	74.9	mg/kg	03.21.18 06.45		5
Total TPH	PHC635	**17500**	74.9	mg/kg	03.21.18 06.45		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	03.21.18 06.45	
o-Terphenyl	84-15-1	96	%	70-135	03.21.18 06.45	

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MC Federal #14 Battery

Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-011	Date Collected:	03.15.18 00.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**33.4**	2.02	mg/kg	03.22.18 15.24		1000
Toluene	108-88-3	**195**	2.02	mg/kg	03.22.18 15.24		1000
Ethylbenzene	100-41-4	**104**	2.02	mg/kg	03.22.18 15.24		1000
m,p-Xylenes	179601-23-1	**148**	4.03	mg/kg	03.22.18 15.24		1000
o-Xylene	95-47-6	**74.2**	2.02	mg/kg	03.22.18 15.24		1000
Total Xylenes	1330-20-7	**222**	2.02	mg/kg	03.22.18 15.24		1000
Total BTEX		**555**	2.02	mg/kg	03.22.18 15.24		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	81	%	70-130	03.22.18 15.24	
4-Bromofluorobenzene	460-00-4	97	%	70-130	03.22.18 15.24	

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MC Federal #14 Battery

Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-012	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**17.2**	5.00	mg/kg	03.20.18 23.23		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**2590**	74.9	mg/kg	03.21.18 07.04		5
Diesel Range Organics (DRO)	C10C28DRO	**4510**	74.9	mg/kg	03.21.18 07.04		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**512**	74.9	mg/kg	03.21.18 07.04		5
Total TPH	PHC635	**7610**	74.9	mg/kg	03.21.18 07.04		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	03.21.18 07.04	
o-Terphenyl	84-15-1	94	%	70-135	03.21.18 07.04	

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Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-012	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**38.4**	1.00	mg/kg	03.22.18 15.43		500
Toluene	108-88-3	**134**	1.00	mg/kg	03.22.18 15.43		500
Ethylbenzene	100-41-4	**140**	1.00	mg/kg	03.22.18 15.43		500
m,p-Xylenes	179601-23-1	**165**	2.00	mg/kg	03.22.18 15.43		500
o-Xylene	95-47-6	**63.7**	1.00	mg/kg	03.22.18 15.43		500
Total Xylenes	1330-20-7	**229**	1.00	mg/kg	03.22.18 15.43		500
Total BTEX		**541**	1.00	mg/kg	03.22.18 15.43		500

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	102	%	70-130	03.22.18 15.43	
1,4-Difluorobenzene	540-36-3	84	%	70-130	03.22.18 15.43	

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MC Federal #14 Battery

Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-013	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.20.18 18.00	Basis:	Wet Weight
Seq Number:	3044312				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	03.20.18 23.28	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**267**	15.0	mg/kg	03.21.18 08.42		1
Diesel Range Organics (DRO)	C10C28DRO	**823**	15.0	mg/kg	03.21.18 08.42		1
Oil Range Hydrocarbons (ORO)	PHCG2835	**85.0**	15.0	mg/kg	03.21.18 08.42		1
Total TPH	PHC635	**1180**	15.0	mg/kg	03.21.18 08.42		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.21.18 08.42	
o-Terphenyl	84-15-1	93	%	70-135	03.21.18 08.42	

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Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-013	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.569**	0.0996	mg/kg	03.22.18 16.03		50
Toluene	108-88-3	**2.80**	0.0996	mg/kg	03.22.18 16.03		50
Ethylbenzene	100-41-4	**14.0**	0.0996	mg/kg	03.22.18 16.03		50
m,p-Xylenes	179601-23-1	**17.8**	0.199	mg/kg	03.22.18 16.03		50
o-Xylene	95-47-6	**7.23**	0.0996	mg/kg	03.22.18 16.03		50
Total Xylenes	1330-20-7	**25.0**	0.0996	mg/kg	03.22.18 16.03		50
Total BTEX		**42.4**	0.0996	mg/kg	03.22.18 16.03		50

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	81	%	70-130	03.22.18 16.03	
4-Bromofluorobenzene	460-00-4	92	%	70-130	03.22.18 16.03	

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COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-014	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.18 09.00	Basis:	Wet Weight
Seq Number:	3044435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	03.21.18 09.17	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**2750**	74.9	mg/kg	03.21.18 07.44		5
Diesel Range Organics (DRO)	C10C28DRO	**4500**	74.9	mg/kg	03.21.18 07.44		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**509**	74.9	mg/kg	03.21.18 07.44		5
Total TPH	PHC635	**7760**	74.9	mg/kg	03.21.18 07.44		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	03.21.18 07.44	
o-Terphenyl	84-15-1	95	%	70-135	03.21.18 07.44	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-014	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**28.8**	0.994	mg/kg	03.22.18 16.24		500
Toluene	108-88-3	**31.5**	0.994	mg/kg	03.22.18 16.24		500
Ethylbenzene	100-41-4	**135**	0.994	mg/kg	03.22.18 16.24		500
m,p-Xylenes	179601-23-1	**163**	1.99	mg/kg	03.22.18 16.24		500
o-Xylene	95-47-6	**61.5**	0.994	mg/kg	03.22.18 16.24		500
Total Xylenes	1330-20-7	**225**	0.994	mg/kg	03.22.18 16.24		500
Total BTEX		**420**	0.994	mg/kg	03.22.18 16.24		500

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	107	%	70-130	03.22.18 16.24	
1,4-Difluorobenzene	540-36-3	105	%	70-130	03.22.18 16.24	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-015	Date Collected:	03.15.18 00.00	Sample Depth:	4 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.18 09.00	Basis:	Wet Weight
Seq Number:	3044435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	03.21.18 09.33	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**1560**	75.0	mg/kg	03.21.18 08.03		5
Diesel Range Organics (DRO)	C10C28DRO	**3340**	75.0	mg/kg	03.21.18 08.03		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**347**	75.0	mg/kg	03.21.18 08.03		5
Total TPH	PHC635	**5250**	75.0	mg/kg	03.21.18 08.03		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	03.21.18 08.03	
o-Terphenyl	84-15-1	95	%	70-135	03.21.18 08.03	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-3**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-015	Date Collected:	03.15.18 00.00	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**8.64**	0.505	mg/kg	03.22.18 16.43		250
Toluene	108-88-3	**2.29**	0.505	mg/kg	03.22.18 16.43		250
Ethylbenzene	100-41-4	**64.7**	0.505	mg/kg	03.22.18 16.43		250
m,p-Xylenes	179601-23-1	**76.8**	1.01	mg/kg	03.22.18 16.43		250
o-Xylene	95-47-6	**29.7**	0.505	mg/kg	03.22.18 16.43		250
Total Xylenes	1330-20-7	**107**	0.505	mg/kg	03.22.18 16.43		250
Total BTEX		**182**	0.505	mg/kg	03.22.18 16.43		250

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	93	%	70-130	03.22.18 16.43	
4-Bromofluorobenzene	460-00-4	99	%	70-130	03.22.18 16.43	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-016	Date Collected:	03.15.18 00.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.18 09.00	Basis:	Wet Weight
Seq Number:	3044435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**385**	5.00	mg/kg	03.21.18 09.38		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044342				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**6430**	150	mg/kg	03.21.18 08.23		10
Diesel Range Organics (DRO)	C10C28DRO	**24300**	150	mg/kg	03.21.18 08.23		10
Oil Range Hydrocarbons (ORO)	PHCG2835	**3670**	150	mg/kg	03.21.18 08.23		10
Total TPH	PHC635	**34400**	150	mg/kg	03.21.18 08.23		10

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	03.21.18 08.23	
o-Terphenyl	84-15-1	91	%	70-135	03.21.18 08.23	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-016	Date Collected:	03.15.18 00.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 08.30	Basis:	Wet Weight
Seq Number:	3044566				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**58.4**	2.00	mg/kg	03.22.18 17.03		1000
Toluene	108-88-3	**231**	2.00	mg/kg	03.22.18 17.03		1000
Ethylbenzene	100-41-4	**143**	2.00	mg/kg	03.22.18 17.03		1000
m,p-Xylenes	179601-23-1	**180**	3.99	mg/kg	03.22.18 17.03		1000
o-Xylene	95-47-6	**76.7**	2.00	mg/kg	03.22.18 17.03		1000
Total Xylenes	1330-20-7	**257**	2.00	mg/kg	03.22.18 17.03		1000
Total BTEX		**689**	2.00	mg/kg	03.22.18 17.03		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	102	%	70-130	03.22.18 17.03	
1,4-Difluorobenzene	540-36-3	95	%	70-130	03.22.18 17.03	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-017	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.18 09.00	Basis:	Wet Weight
Seq Number:	3044435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**39.2**	5.00	mg/kg	03.21.18 09.44		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044346				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**2600**	74.9	mg/kg	03.21.18 04.48		5
Diesel Range Organics (DRO)	C10C28DRO	**8370**	74.9	mg/kg	03.21.18 04.48		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**381**	74.9	mg/kg	03.21.18 04.48		5
Total TPH	PHC635	**11400**	74.9	mg/kg	03.21.18 04.48		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	03.21.18 04.48	
o-Terphenyl	84-15-1	101	%	70-135	03.21.18 04.48	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-017	Date Collected:	03.15.18 00.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**3.92**	1.99	mg/kg	03.23.18 09.56		1000
Toluene	108-88-3	**47.1**	1.99	mg/kg	03.23.18 09.56		1000
Ethylbenzene	100-41-4	**56.5**	1.99	mg/kg	03.23.18 09.56		1000
m,p-Xylenes	179601-23-1	**70.9**	3.98	mg/kg	03.23.18 09.56		1000
o-Xylene	95-47-6	**28.6**	1.99	mg/kg	03.23.18 09.56		1000
Total Xylenes	1330-20-7	**99.5**	1.99	mg/kg	03.23.18 09.56		1000
Total BTEX		**207**	1.99	mg/kg	03.23.18 09.56		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	83	%	70-130	03.23.18 09.56	
4-Bromofluorobenzene	460-00-4	86	%	70-130	03.23.18 09.56	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-018	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.18 09.00	Basis:	Wet Weight
Seq Number:	3044435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.15**	4.99	mg/kg	03.21.18 09.49		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044346				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**3270**	74.8	mg/kg	03.21.18 05.14		5
Diesel Range Organics (DRO)	C10C28DRO	**9660**	74.8	mg/kg	03.21.18 05.14		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**322**	74.8	mg/kg	03.21.18 05.14		5
Total TPH	PHC635	**13300**	74.8	mg/kg	03.21.18 05.14		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	129	%	70-135	03.21.18 05.14	
o-Terphenyl	84-15-1	114	%	70-135	03.21.18 05.14	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-018	Date Collected:	03.15.18 00.00	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**6.33**	2.01	mg/kg	03.23.18 10.15		1000
Toluene	108-88-3	**55.7**	2.01	mg/kg	03.23.18 10.15		1000
Ethylbenzene	100-41-4	**94.9**	2.01	mg/kg	03.23.18 10.15		1000
m,p-Xylenes	179601-23-1	**121**	4.02	mg/kg	03.23.18 10.15		1000
o-Xylene	95-47-6	**46.4**	2.01	mg/kg	03.23.18 10.15		1000
Total Xylenes	1330-20-7	**167**	2.01	mg/kg	03.23.18 10.15		1000
Total BTEX		**324**	2.01	mg/kg	03.23.18 10.15		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	91	%	70-130	03.23.18 10.15	
4-Bromofluorobenzene	460-00-4	100	%	70-130	03.23.18 10.15	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-019	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	SCM	Date Prep:	03.21.18 09.00	Basis:	Wet Weight
Seq Number:	3044435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**34.5**	5.00	mg/kg	03.21.18 10.05		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.20.18 17.00	Basis:	Wet Weight
Seq Number:	3044346				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**3380**	74.9	mg/kg	03.21.18 05.41		5
Diesel Range Organics (DRO)	C10C28DRO	**9200**	74.9	mg/kg	03.21.18 05.41		5
Oil Range Hydrocarbons (ORO)	PHCG2835	**240**	74.9	mg/kg	03.21.18 05.41		5
Total TPH	PHC635	**12800**	74.9	mg/kg	03.21.18 05.41		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	130	%	70-135	03.21.18 05.41	
o-Terphenyl	84-15-1	100	%	70-135	03.21.18 05.41	

Certificate of Analytical Results 579572

COG Operating LLC, Artesia, NM

MC Federal #14 Battery

Sample Id:	**AH-4**	Matrix:	Soil	Date Received:	03.19.18 08.00
Lab Sample Id:	579572-019	Date Collected:	03.15.18 00.00	Sample Depth:	3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	03.22.18 17.15	Basis:	Wet Weight
Seq Number:	3044699				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**5.69**	2.01	mg/kg	03.23.18 10.35		1000
Toluene	108-88-3	**37.8**	2.01	mg/kg	03.23.18 10.35		1000
Ethylbenzene	100-41-4	**77.6**	2.01	mg/kg	03.23.18 10.35		1000
m,p-Xylenes	179601-23-1	**97.6**	4.02	mg/kg	03.23.18 10.35		1000
o-Xylene	95-47-6	**37.4**	2.01	mg/kg	03.23.18 10.35		1000
Total Xylenes	1330-20-7	**135**	2.01	mg/kg	03.23.18 10.35		1000
Total BTEX		**256**	2.01	mg/kg	03.23.18 10.35		1000

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	03.23.18 10.35	
1,4-Difluorobenzene	540-36-3	88	%	70-130	03.23.18 10.35	

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

QC Summary 579572

COG Operating LLC

MC Federal #14 Battery

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044292 — Matrix: Solid — Date Prep: 03.20.18
MB Sample Id: 7641126-1-BLK — LCS Sample Id: 7641126-1-BKS — LCSD Sample Id: 7641126-1-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	244	98	235	94	90-110	4	20	mg/kg	03.20.18 13:27	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044312 — Matrix: Solid — Date Prep: 03.20.18
MB Sample Id: 7641157-1-BLK — LCS Sample Id: 7641157-1-BKS — LCSD Sample Id: 7641157-1-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	237	95	236	94	90-110	0	20	mg/kg	03.20.18 20:54	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044435 — Matrix: Solid — Date Prep: 03.21.18
MB Sample Id: 7641170-1-BLK — LCS Sample Id: 7641170-1-BKS — LCSD Sample Id: 7641170-1-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	233	93	233	93	90-110	0	20	mg/kg	03.21.18 09:06	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044292 — Matrix: Soil — Date Prep: 03.20.18
Parent Sample Id: 579487-019 — MS Sample Id: 579487-019 S — MSD Sample Id: 579487-019 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	263	249	499	95	521	104	90-110	4	20	mg/kg	03.20.18 14:57	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044292 — Matrix: Soil — Date Prep: 03.20.18
Parent Sample Id: 579647-001 — MS Sample Id: 579647-001 S — MSD Sample Id: 579647-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	66.9	250	299	93	300	93	90-110	0	20	mg/kg	03.20.18 13:42	

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

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

Final 1.000

QC Summary 579572

COG Operating LLC

MC Federal #14 Battery

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044312 — Matrix: Soil — Date Prep: 03.20.18
Parent Sample Id: 579572-004 — MS Sample Id: 579572-004 S — MSD Sample Id: 579572-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	158	250	383	90	376	87	90-110	2	20	mg/kg	03.20.18 22:24	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044312 — Matrix: Soil — Date Prep: 03.20.18
Parent Sample Id: 579755-001 — MS Sample Id: 579755-001 S — MSD Sample Id: 579755-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9.78	249	238	92	240	92	90-110	1	20	mg/kg	03.20.18 21:10	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044435 — Matrix: Soil — Date Prep: 03.21.18
Parent Sample Id: 579572-014 — MS Sample Id: 579572-014 S — MSD Sample Id: 579572-014 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	265	106	256	102	90-110	3	20	mg/kg	03.21.18 09:22	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3044435 — Matrix: Soil — Date Prep: 03.21.18
Parent Sample Id: 579573-005 — MS Sample Id: 579573-005 S — MSD Sample Id: 579573-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	245	98	242	97	90-110	1	20	mg/kg	03.21.18 10:37	

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3044342 — Matrix: Solid — Date Prep: 03.20.18
MB Sample Id: 7641202-1-BLK — LCS Sample Id: 7641202-1-BKS — LCSD Sample Id: 7641202-1-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 (GRO)	<15.0	1000	1050	105	1080	108	70-135	3	35	mg/kg	03.20.18 17:44	
Diesel Range Organics (DRO)	<15.0	1000	903	90	981	98	70-135	8	35	mg/kg	03.20.18 17:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		94		96		70-135	%	03.20.18 17:44
o-Terphenyl	102		94		97		70-135	%	03.20.18 17:44

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

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

QC Summary 579572

COG Operating LLC

MC Federal #14 Battery

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3044346 — Matrix: Solid — Date Prep: 03.20.18
MB Sample Id: 7641204-1-BLK — LCS Sample Id: 7641204-1-BKS — LCSD Sample Id: 7641204-1-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 (GRO)	<15.0	1000	1030	103	1060	106	70-135	3	35	mg/kg	03.20.18 18:34	
Diesel Range Organics (DRO)	<15.0	1000	1060	106	1100	110	70-135	4	35	mg/kg	03.20.18 18:34	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		112		113		70-135	%	03.20.18 18:34
o-Terphenyl	100		107		111		70-135	%	03.20.18 18:34

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3044591 — Matrix: Solid — Date Prep: 03.22.18
MB Sample Id: 7641316-1-BLK — LCS Sample Id: 7641316-1-BKS — LCSD Sample Id: 7641316-1-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 (GRO)	<15.0	1000	1050	105	1090	109	70-135	4	35	mg/kg	03.22.18 23:38	
Diesel Range Organics (DRO)	<15.0	1000	1110	111	1150	115	70-135	4	35	mg/kg	03.22.18 23:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		115		116		70-135	%	03.22.18 23:38
o-Terphenyl	100		109		114		70-135	%	03.22.18 23:38

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3044342 — Matrix: Soil — Date Prep: 03.20.18
Parent Sample Id: 579755-006 — MS Sample Id: 579755-006 S — MSD Sample Id: 579755-006 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 (GRO)	<15.0	1000	993	99	1040	104	70-135	5	35	mg/kg	03.20.18 20:18	
Diesel Range Organics (DRO)	<15.0	1000	921	92	975	98	70-135	6	35	mg/kg	03.20.18 20:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		102		70-135	%	03.20.18 20:18
o-Terphenyl	94		99		70-135	%	03.20.18 20:18

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

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

Final 1.000

QC Summary 579572

COG Operating LLC

MC Federal #14 Battery

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3044346 — Matrix: Soil — Date Prep: 03.20.18
Parent Sample Id: 579569-001 — MS Sample Id: 579569-001 S — MSD Sample Id: 579569-001 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 (GRO)	<15.0	999	946	95	951	95	70-135	1	35	mg/kg	03.20.18 19:54	
Diesel Range Organics (DRO)	<15.0	999	979	98	988	99	70-135	1	35	mg/kg	03.20.18 19:54	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		109		70-135	%	03.20.18 19:54
o-Terphenyl	102		103		70-135	%	03.20.18 19:54

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3044591 — Matrix: Soil — Date Prep: 03.22.18
Parent Sample Id: 579708-001 — MS Sample Id: 579708-001 S — MSD Sample Id: 579708-001 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 (GRO)	<15.0	998	1030	103	1090	109	70-135	6	35	mg/kg	03.23.18 00:57	
Diesel Range Organics (DRO)	<15.0	998	1080	108	1140	114	70-135	5	35	mg/kg	03.23.18 00:57	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		113		70-135	%	03.23.18 00:57
o-Terphenyl	105		111		70-135	%	03.23.18 00:57

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3044566 — Matrix: Solid — Date Prep: 03.22.18
MB Sample Id: 7641307-1-BLK — LCS Sample Id: 7641307-1-BKS — LCSD Sample Id: 7641307-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.116	115	0.117	116	70-130	1	35	mg/kg	03.22.18 06:54	
Toluene	<0.00202	0.101	0.113	112	0.115	114	70-130	2	35	mg/kg	03.22.18 06:54	
Ethylbenzene	<0.00202	0.101	0.116	115	0.119	118	70-130	3	35	mg/kg	03.22.18 06:54	
m,p-Xylenes	<0.00403	0.202	0.238	118	0.246	122	70-130	3	35	mg/kg	03.22.18 06:54	
o-Xylene	<0.00202	0.101	0.118	117	0.121	120	70-130	3	35	mg/kg	03.22.18 06:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		101		97		70-130	%	03.22.18 06:54
4-Bromofluorobenzene	88		104		103		70-130	%	03.22.18 06:54

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

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

Final 1.000

QC Summary 579572

COG Operating LLC

MC Federal #14 Battery

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3044699 — Matrix: Solid — Date Prep: 03.22.18
MB Sample Id: 7641383-1-BLK — LCS Sample Id: 7641383-1-BKS — LCSD Sample Id: 7641383-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.113	113	0.115	114	70-130	2	35	mg/kg	03.23.18 06:23	
Toluene	<0.00199	0.0996	0.111	111	0.113	112	70-130	2	35	mg/kg	03.23.18 06:23	
Ethylbenzene	<0.00199	0.0996	0.111	111	0.112	111	70-130	1	35	mg/kg	03.23.18 06:23	
m,p-Xylenes	<0.00398	0.199	0.227	114	0.228	113	70-130	0	35	mg/kg	03.23.18 06:23	
o-Xylene	<0.00199	0.0996	0.113	113	0.115	114	70-130	2	35	mg/kg	03.23.18 06:23	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		107		107		70-130	%	03.23.18 06:23
4-Bromofluorobenzene	85		97		92		70-130	%	03.23.18 06:23

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3044566 — Matrix: Soil — Date Prep: 03.22.18
Parent Sample Id: 579570-001 — MS Sample Id: 579570-001 S — MSD Sample Id: 579570-001 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	0.100	0.103	103	0.0992	98	70-130	4	35	mg/kg	03.22.18 12:28	
Toluene	<0.00200	0.100	0.0973	97	0.0951	94	70-130	2	35	mg/kg	03.22.18 12:28	
Ethylbenzene	<0.00200	0.100	0.0915	92	0.0872	86	70-130	5	35	mg/kg	03.22.18 12:28	
m,p-Xylenes	<0.00401	0.200	0.185	93	0.177	88	70-130	4	35	mg/kg	03.22.18 12:28	
o-Xylene	<0.00200	0.100	0.0944	94	0.0915	91	70-130	3	35	mg/kg	03.22.18 12:28	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		95		70-130	%	03.22.18 12:28
4-Bromofluorobenzene	110		105		70-130	%	03.22.18 12:28

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3044699 — Matrix: Soil — Date Prep: 03.22.18
Parent Sample Id: 579821-001 — MS Sample Id: 579821-001 S — MSD Sample Id: 579821-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0950	95	0.0950	95	70-130	0	35	mg/kg	03.23.18 07:02	
Toluene	<0.00201	0.100	0.0882	88	0.0909	91	70-130	3	35	mg/kg	03.23.18 07:02	
Ethylbenzene	<0.00201	0.100	0.0829	83	0.0868	87	70-130	5	35	mg/kg	03.23.18 07:02	
m,p-Xylenes	<0.00402	0.201	0.169	84	0.177	89	70-130	5	35	mg/kg	03.23.18 07:02	
o-Xylene	<0.00201	0.100	0.0845	85	0.0895	90	70-130	6	35	mg/kg	03.23.18 07:02	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		103		70-130	%	03.23.18 07:02
4-Bromofluorobenzene	98		95		70-130	%	03.23.18 07:02

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]

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

Final 1.000

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Dallas Texas (214-902-0300) | Midland, Texas (432-704-5251)

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CHAIN OF CUSTODY

Page 1 Of 2

Xenco Quote #: | Xenco Job # 579572

Client / Reporting Information

Company Name / Branch: COG Operating, LLC
Company Address: 2407 Pecos Ave. Artesia NM 88210
Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; cgray@concho.com; rhaskell@concho.com
Project Contact: Sheldon Hitchcock
Samplers's Name: Christopher Gray

Project Information

Project Name/Number: MC Federal #14 Battery
Project Location: Lea County
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

Matrix Codes: W = Water, S = Soil/Sed/Solid, GW = Ground Water, DW = Drinking Water, P = Product, SW = Surface water, SL = Sludge, OW = Ocean/Sea Water, WI = Wipe, O = Oil, WW = Waste Water, A = Air

No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments
1	AH-1	0	3/15/18		S	1								X	X	X	X	
2	AH-1	1			S	1												
3	AH-1	2			S	1												
4	AH-1	3			S	1												
5	AH-1	4			S	1												
6	AH-2	0			S	1												
7	AH-2	1			S	1												
8	AH-2	2			S	1												
9	AH-2	3			S	1												
10	AH-2	3.5			S	1												

Temp: 1.4 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 1.2

Turnaround Time (Business days)

- [ ] Same Day TAT
- [x] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes: Stop running if Chlorides are below 600

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by	Date Time	Received By	Relinquished By	Date Time	Received By
1 Christopher Gray (Sampler)	3/16/18 10:00A	1 Sid Butler 3-16-18 10A	2 Sid Butler	3-16-18 1145A	2 [signature] 3/19/18 8:00
3		3	4		4
5		5	Custody Seal #	Preserved where applicable / On Ice	Cooler Temp. / Thermo. Corr. Factor

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

CHAIN OF CUSTODY

Page 2 Of 2

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San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com

Xenco Quote #

Xenco Job # 579572

Client / Reporting Information

Company Name / Branch: COG Operating, LLC
Company Address: 2407 Pecos Ave. Artesia NM 88210
Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; cgray@concho.com; rhaskell@concho.com
Project Contact: Sheldon Hitchcock
Samplers's Name: Christopher Gray

Project Information

Project Name/Number: MC Federal #14 Battery
Project Location: Lea County
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

Analytical Information

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
WI = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments
1	AH-3	0	3/15/18		S	1								X	X	X	X	
2	AH-3	1			S	1												
3	AH-3	2			S	1												
4	AH-3	3			S	1												
5	AH-3	4			S	1												
6	AH-4	0			S	1												
7	AH-4	1			S	1												
8	AH-4	2			S	1												
9	AH-4	3			S	1												
10					S	1												

Temp: 1.4 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 1.2

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- [ ] Level II Std QC
- [ ] Level IV (Full Data Pkg /raw data)
- [ ] Level III Std QC+ Forms
- [ ] TRRP Level IV
- [ ] Level 3 (CLP Forms)
- [ ] UST / RG -411
- [ ] TRRP Checklist

Notes: Stop running if Chlorides are below 600

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Christopher Gray	3/16/18 -10:00	1 Sid Butler	2 Sid Butler	3-16-18 1145	2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

3-16-18 10A
3/19/18 8:00

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 03/19/2018 08:00:00 AM

Work Order #: 579572

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)?	1.2
#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)?	**No**
#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: Connie Hernandez Date: 03/19/2018

Connie Hernandez

Checklist reviewed by: Jessica Kramer Date: 03/19/2018

Jessica Kramer

CARDINAL Laboratories

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

April 19, 2018

DAKOTA NEEL

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: MC FEDERAL #14

Enclosed are the results of analyses for samples received by the laboratory on 04/12/18 12:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH - 1 4'	H801011-01	Soil	11-Apr-18 12:00	12-Apr-18 12:00
BH - 2 4'	H801011-08	Soil	11-Apr-18 12:00	12-Apr-18 12:00

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

BH - 1 4'

H801011-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	8041604	MS	16-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8041604	MS	16-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8041604	MS	16-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8041604	MS	16-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8041604	MS	16-Apr-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*95.4 %*	*72-148*		*8041604*	MS	*16-Apr-18*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	8041307	MS	16-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8041307	MS	16-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8041307	MS	16-Apr-18	8015B	
Surrogate: 1-Chlorooctane			*77.5 %*	*41-142*		*8041307*	MS	*16-Apr-18*	*8015B*	
Surrogate: 1-Chlorooctadecane			*46.9 %*	*37.6-147*		*8041307*	MS	*16-Apr-18*	*8015B*	
Green Analytical Laboratories										
Soluble (DI Water Extraction)										
Chloride	**78.5**		10.0	mg/kg wet	10	B804136	JDA	17-Apr-18	EPA300.0	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

BH - 2 4'

H801011-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	8041605	MS	17-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8041605	MS	17-Apr-18	8021B	
Ethylbenzene*	**0.059**		0.050	mg/kg	50	8041605	MS	17-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8041605	MS	17-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8041605	MS	17-Apr-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*99.6 %*	*72-148*		*8041605*	MS	*17-Apr-18*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	8041601	MS	17-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8041601	MS	17-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8041601	MS	17-Apr-18	8015B	
Surrogate: 1-Chlorooctane			*83.7 %*	*41-142*		*8041601*	MS	*17-Apr-18*	*8015B*	
Surrogate: 1-Chlorooctadecane			*77.7 %*	*37.6-147*		*8041601*	MS	*17-Apr-18*	*8015B*	
Green Analytical Laboratories										
Soluble (DI Water Extraction)										
Chloride	<10.0		10.0	mg/kg wet	10	B804136	JDA	18-Apr-18	EPA300.0	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8041604 - Volatiles										
Blank (8041604-BLK1)				Prepared & Analyzed: 16-Apr-18						
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	*0.0975*		mg/kg	*0.100*		*97.5*	*72-148*			
LCS (8041604-BS1)				Prepared & Analyzed: 16-Apr-18						
Benzene	1.87	0.050	mg/kg	2.00		93.6	79.5-124			
Toluene	1.90	0.050	mg/kg	2.00		95.2	75.5-127			
Ethylbenzene	1.88	0.050	mg/kg	2.00		93.9	77.7-125			
Total Xylenes	5.80	0.150	mg/kg	6.00		96.7	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0972*		mg/kg	*0.100*		*97.2*	*72-148*			
LCS Dup (8041604-BSD1)				Prepared & Analyzed: 16-Apr-18						
Benzene	1.92	0.050	mg/kg	2.00		95.9	79.5-124	2.48	6.5	
Toluene	1.93	0.050	mg/kg	2.00		96.5	75.5-127	1.42	7.02	
Ethylbenzene	1.92	0.050	mg/kg	2.00		96.0	77.7-125	2.16	7.83	
Total Xylenes	5.95	0.150	mg/kg	6.00		99.1	70.9-124	2.50	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	*0.0957*		mg/kg	*0.100*		*95.7*	*72-148*			
Batch 8041605 - Volatiles										
Blank (8041605-BLK1)				Prepared: 16-Apr-18 Analyzed: 17-Apr-18						
Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	*0.0966*		mg/kg	*0.100*		*96.6*	*72-148*			

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8041605 - Volatiles										
LCS (8041605-BS1)				Prepared: 16-Apr-18 Analyzed: 17-Apr-18						
Benzene	1.89	0.050	mg/kg	2.00		94.5	79.5-124			
Toluene	1.88	0.050	mg/kg	2.00		94.2	75.5-127			
Ethylbenzene	1.88	0.050	mg/kg	2.00		93.9	77.7-125			
Total Xylenes	5.81	0.150	mg/kg	6.00		96.9	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0956*		mg/kg	*0.100*		*95.6*	*72-148*			
LCS Dup (8041605-BSD1)				Prepared: 16-Apr-18 Analyzed: 17-Apr-18						
Benzene	1.93	0.050	mg/kg	2.00		96.5	79.5-124	2.13	6.5	
Toluene	1.92	0.050	mg/kg	2.00		96.2	75.5-127	2.05	7.02	
Ethylbenzene	1.92	0.050	mg/kg	2.00		96.1	77.7-125	2.38	7.83	
Total Xylenes	5.96	0.150	mg/kg	6.00		99.3	70.9-124	2.44	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	*0.0943*		mg/kg	*0.100*		*94.3*	*72-148*			

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8041307 - General Prep - Organics										
Blank (8041307-BLK1)				Prepared & Analyzed: 16-Apr-18						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*48.1*		mg/kg	*50.0*		*96.3*	*41-142*			
Surrogate: 1-Chlorooctadecane	*30.4*		mg/kg	*50.0*		*60.8*	*37.6-147*			
LCS (8041307-BS1)				Prepared & Analyzed: 16-Apr-18						
GRO C6-C10	234	10.0	mg/kg	200		117	76.5-133			
DRO >C10-C28	217	10.0	mg/kg	200		108	72.9-138			
Total TPH C6-C28	450	10.0	mg/kg	400		113	78-132			
Surrogate: 1-Chlorooctane	*50.6*		mg/kg	*50.0*		*101*	*41-142*			
Surrogate: 1-Chlorooctadecane	*42.7*		mg/kg	*50.0*		*85.5*	*37.6-147*			
LCS Dup (8041307-BSD1)				Prepared & Analyzed: 16-Apr-18						
GRO C6-C10	231	10.0	mg/kg	200		115	76.5-133	1.20	20.6	
DRO >C10-C28	214	10.0	mg/kg	200		107	72.9-138	1.06	20.6	
Total TPH C6-C28	445	10.0	mg/kg	400		111	78-132	1.13	18	
Surrogate: 1-Chlorooctane	*50.2*		mg/kg	*50.0*		*100*	*41-142*			
Surrogate: 1-Chlorooctadecane	*40.8*		mg/kg	*50.0*		*81.6*	*37.6-147*			
Batch 8041601 - General Prep - Organics										
Blank (8041601-BLK1)				Prepared & Analyzed: 16-Apr-18						
GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	*47.7*		mg/kg	*50.0*		*95.5*	*41-142*			
Surrogate: 1-Chlorooctadecane	*46.2*		mg/kg	*50.0*		*92.5*	*37.6-147*			

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 8041601 - General Prep - Organics										
LCS (8041601-BS1)				Prepared & Analyzed: 16-Apr-18						
GRO C6-C10	228	10.0	mg/kg	200		114	76.5-133			
DRO >C10-C28	217	10.0	mg/kg	200		109	72.9-138			
Total TPH C6-C28	445	10.0	mg/kg	400		111	78-132			
Surrogate: 1-Chlorooctane	*50.7*		mg/kg	*50.0*		*101*	*41-142*			
Surrogate: 1-Chlorooctadecane	*51.0*		mg/kg	*50.0*		*102*	*37.6-147*			
LCS Dup (8041601-BSD1)				Prepared & Analyzed: 16-Apr-18						
GRO C6-C10	221	10.0	mg/kg	200		110	76.5-133	3.17	20.6	
DRO >C10-C28	210	10.0	mg/kg	200		105	72.9-138	3.59	20.6	
Total TPH C6-C28	430	10.0	mg/kg	400		108	78-132	3.37	18	
Surrogate: 1-Chlorooctane	*48.9*		mg/kg	*50.0*		*97.8*	*41-142*			
Surrogate: 1-Chlorooctadecane	*48.7*		mg/kg	*50.0*		*97.4*	*37.6-147*			

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC FEDERAL #14 Project Number: NONE GIVEN Project Manager: DAKOTA NEEL Fax To: NONE	Reported: 19-Apr-18 13:46

Soluble (DI Water Extraction) - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B804136 - General Prep - Wet Chem										
Blank (B804136-BLK1)				Prepared & Analyzed: 17-Apr-18						
Chloride	ND	10.0	mg/kg wet							
LCS (B804136-BS1)				Prepared & Analyzed: 17-Apr-18						
Chloride	226	10.0	mg/kg wet	250		90.3	85-115			
LCS Dup (B804136-BSD1)				Prepared & Analyzed: 17-Apr-18						
Chloride	225	10.0	mg/kg wet	250		90.1	85-115	0.204	20	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1 OF 2

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

Company Name:	COG Operating LLC
Project Manager:	Dakota Neel
Address:	2208 West Main
City:	Artesia State: NM Zip 88210
Phone #:	(575) 748-6930 Fax #:
Project #:	Project Owner:
Project Name:	MC FEDERAL #14
Project Location:	
Sampler Name:	DAKOTA NEEL

BILL TO

P.O. #:	
Company:	COG Operating LLC
Attn:	Robert McNeill
Address:	600 W Illinois
City:	Midland
State: TX	Zip: 79701
Phone #:	(432) 221-0388
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	BTEX	TPH Extended	Chloride EPA 300
H801011																	
1	BH - 1 4'					X					X		4-11-18	12:00PM	X	X	X
2	BH - 1 6'					X					X				X	X	X
3	BH - 1 8'					X					X				X	X	X
4	BH - 1 10'					X					X				X	X	X
5	BH - 1 12'					X					X				X	X	X
6	BH - 1 16'					X					X				X	X	X
7	BH - 1 18'					X					X				X	X	X
8	BH - 2 4'					X					X				X	X	X
9	BH - 2 6'					X					X				X	X	X
10	BH - 2 8'					X					X				X	X	X

Relinquished By:	Date: 4-12-18	Received By:	
Relinquished By:	Time: 12:00PM	Received By:	
	Date:		
	Time:		

Delivered By: (Circle One) #75

Sampler - UPS - Bus - Other: 4.9°C / 4.85°C corrected -.05°C

Sample Condition: Cool: Yes / No; Intact: Yes / No

CHECKED BY: (Initials)

FORM-006 R 2.0

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

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

ONLY RUN DEEPER SAMPLES IF:

BENZENE ≥ 10 mg/kg

BTEX ≥ 50 mg/kg

TPH ≥ 1000 mg/kg

CHLORIDE ≥ 600 mg/kg

CARDINAL Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	COG Operating LLC	**BILL TO**	
Project Manager:	Dakota Neel	**P.O. #:**	
Address:	2208 West Main	**Company:**	COG Operating LLC
City:	Artesia **State:** NM **Zip** 88210	**Attn:**	Robert McNeill
Phone #:	(575) 748-6930 **Fax #:**	**Address:**	600 W Illinois
Project #:	**Project Owner:**	**City:**	Midland
Project Name:	MC FEDERAL # 14	**State:** TX **Zip:** 79701	
Project Location:		**Phone #:**	(432) 221-0388
Sampler Name:	SH DAKOTA NEEL	**Fax #:**	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	BTEX	TPH Extended	Chloride
H801011																	
11	BH-2 10'					X					X		4-11-18	12:30PM	X	X	X
12	BH-2 12'					X					X			↓	X	X	X
13	BH-2 14'					X					X				X	X	X

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

Relinquished By:	**Date:** 4-12-18	**Received By:**	
	Time: 12:00PM		
Relinquished By:	**Date:**	**Received By:**	
#75	**Time:**		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.9°C / 4.85°C corrected -.05°C

Sample Condition Cool: ☐ Yes ☐ No (X) Intact: ☑ Yes ☐ No

CHECKED BY: (Initials)

FORM-006 R 2.0

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

Phone Result: ☐ Yes ☐ No **Add'l Phone #:**
Fax Result: ☐ Yes ☐ No **Add'l Fax #:**
REMARKS:

SEE PAGE #1

Appendix D

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Justin Nixon
ARCADIS US Inc
1004 North Big Spring
Suite 300
Midland, Texas 79701

Generated 10/18/2023 1:04:15 PM

JOB DESCRIPTION

MC Fed #014
SDG NUMBER Lea County, NM

JOB NUMBER

880-34337-1

Eurofins Midland
1211 W. Florida Ave
Midland TX 79701

See page two for job notes and contact information.

my EOL

Eurofins Midland

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
10/18/2023 1:04:15 PM

Authorized for release by
John Builes, Project Manager
John.Builes@et.eurofinsus.com
(561)558-4549

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Laboratory Job ID: 880-34337-1
SDG: Lea County, NM

Table of Contents

Definitions/Glossary

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Job ID: 880-34337-1

Laboratory: Eurofins Midland

Narrative

Job Narrative
880-34337-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 10/12/2023 8:58 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.5°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: S-1-101023 (880-34337-1), S-2-101023 (880-34337-2), S-3-101023 (880-34337-3) and S-4-101023 (880-34337-4).

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: S-1-101023 (880-34337-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (LCS 880-64647/1-A). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-64532 and analytical batch 880-64515 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-64515/5) and (LCS 880-64532/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: S-1-101023 (880-34337-1), S-2-101023 (880-34337-2), S-3-101023 (880-34337-3) and S-4-101023 (880-34337-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The continuing calibration verification (CCV) associated with batch 880-64515 recovered above the upper control limit for Gasoline Range Organics (GRO)-C6-C10 and Diesel Range Organics (Over C10-C28) due to being inadvertently double spiked. Percent recoveries are based on the amount spiked. The associated samples are impacted: (CCV 880-64515/20) and (CCV 880-64515/31).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Client Sample ID: S-1-101023

Lab Sample ID: 880-34337-1
Matrix: Solid
Date Collected: 10/10/23 12:30
Date Received: 10/12/23 08:58

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000383	U F1	0.00199	0.000383	mg/Kg		10/13/23 09:24	10/13/23 13:55	1
Toluene	<0.000453	U F1	0.00199	0.000453	mg/Kg		10/13/23 09:24	10/13/23 13:55	1
Ethylbenzene	<0.000562	U F1	0.00199	0.000562	mg/Kg		10/13/23 09:24	10/13/23 13:55	1
m-Xylene & p-Xylene	<0.00100	U F1	0.00398	0.00100	mg/Kg		10/13/23 09:24	10/13/23 13:55	1
o-Xylene	<0.000342	U F1	0.00199	0.000342	mg/Kg		10/13/23 09:24	10/13/23 13:55	1
Xylenes, Total	<0.00100	U	0.00398	0.00100	mg/Kg		10/13/23 09:24	10/13/23 13:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/13/23 09:24*	*10/13/23 13:55*	*1*
1,4-Difluorobenzene (Surr)	*67*	*S1-*	*70 - 130*	*10/13/23 09:24*	*10/13/23 13:55*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00100	U	0.00398	0.00100	mg/Kg			10/13/23 13:55	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**37.6**	**J**	50.5	15.1	mg/Kg			10/12/23 17:32	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	**21.7**	**J**	50.5	15.1	mg/Kg		10/12/23 10:42	10/12/23 17:32	1
Diesel Range Organics (Over C10-C28)	**15.9**	**J**	50.5	15.1	mg/Kg		10/12/23 10:42	10/12/23 17:32	1
OII Range Organics (Over C28-C36)	<15.1	U	50.5	15.1	mg/Kg		10/12/23 10:42	10/12/23 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*137*	*S1+*	*70 - 130*	*10/12/23 10:42*	*10/12/23 17:32*	*1*
o-Terphenyl	*129*		*70 - 130*	*10/12/23 10:42*	*10/12/23 17:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**94.0**		4.98	0.393	mg/Kg			10/17/23 14:56	1

Client Sample ID: S-2-101023

Lab Sample ID: 880-34337-2
Matrix: Solid
Date Collected: 10/10/23 12:45
Date Received: 10/12/23 08:58

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000384	U	0.00200	0.000384	mg/Kg		10/13/23 09:24	10/13/23 17:31	1
Toluene	<0.000455	U	0.00200	0.000455	mg/Kg		10/13/23 09:24	10/13/23 17:31	1
Ethylbenzene	<0.000564	U	0.00200	0.000564	mg/Kg		10/13/23 09:24	10/13/23 17:31	1
m-Xylene & p-Xylene	<0.00101	U	0.00399	0.00101	mg/Kg		10/13/23 09:24	10/13/23 17:31	1
o-Xylene	<0.000343	U	0.00200	0.000343	mg/Kg		10/13/23 09:24	10/13/23 17:31	1
Xylenes, Total	<0.00101	U	0.00399	0.00101	mg/Kg		10/13/23 09:24	10/13/23 17:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*	*10/13/23 09:24*	*10/13/23 17:31*	*1*
1,4-Difluorobenzene (Surr)	*80*		*70 - 130*	*10/13/23 09:24*	*10/13/23 17:31*	*1*

Client Sample Results

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Client Sample ID: S-2-101023
Date Collected: 10/10/23 12:45
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-2
Matrix: Solid

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00101	U	0.00399	0.00101	mg/Kg			10/13/23 17:31	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**36.2**	**J**	50.5	15.2	mg/Kg			10/12/23 17:54	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.2	U	50.5	15.2	mg/Kg		10/12/23 10:42	10/12/23 17:54	1
Diesel Range Organics (Over C10-C28)	**36.2**	**J**	50.5	15.2	mg/Kg		10/12/23 10:42	10/12/23 17:54	1
OII Range Organics (Over C28-C36)	<15.2	U	50.5	15.2	mg/Kg		10/12/23 10:42	10/12/23 17:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*139*	*S1+*	*70 - 130*	*10/12/23 10:42*	*10/12/23 17:54*	*1*
o-Terphenyl	*132*	*S1+*	*70 - 130*	*10/12/23 10:42*	*10/12/23 17:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**82.5**		4.99	0.394	mg/Kg			10/17/23 15:13	1

Client Sample ID: S-3-101023
Date Collected: 10/10/23 13:00
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-3
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		10/13/23 09:24	10/13/23 12:33	1
Toluene	<0.000459	U	0.00201	0.000459	mg/Kg		10/13/23 09:24	10/13/23 12:33	1
Ethylbenzene	<0.000568	U	0.00201	0.000568	mg/Kg		10/13/23 09:24	10/13/23 12:33	1
m-Xylene & p-Xylene	<0.00102	U	0.00402	0.00102	mg/Kg		10/13/23 09:24	10/13/23 12:33	1
o-Xylene	**0.00782**		0.00201	0.000346	mg/Kg		10/13/23 09:24	10/13/23 12:33	1
Xylenes, Total	**0.00782**		0.00402	0.00102	mg/Kg		10/13/23 09:24	10/13/23 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*	*10/13/23 09:24*	*10/13/23 12:33*	*1*
1,4-Difluorobenzene (Surr)	*76*		*70 - 130*	*10/13/23 09:24*	*10/13/23 12:33*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	**0.00782**		0.00402	0.00102	mg/Kg			10/13/23 12:33	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**44.0**	**J**	50.2	15.1	mg/Kg			10/12/23 18:16	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	**21.3**	**J**	50.2	15.1	mg/Kg		10/12/23 10:42	10/12/23 18:16	1
Diesel Range Organics (Over C10-C28)	**22.7**	**J**	50.2	15.1	mg/Kg		10/12/23 10:42	10/12/23 18:16	1

Eurofins Midland

Client Sample Results

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Client Sample ID: S-3-101023
Date Collected: 10/10/23 13:00
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-3
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
OII Range Organics (Over C28-C36)	<15.1	U	50.2	15.1	mg/Kg		10/12/23 10:42	10/12/23 18:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*138*	*S1+*	*70 - 130*	*10/12/23 10:42*	*10/12/23 18:16*	*1*
o-Terphenyl	*131*	*S1+*	*70 - 130*	*10/12/23 10:42*	*10/12/23 18:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**93.1**		4.99	0.394	mg/Kg			10/17/23 15:19	1

Client Sample ID: S-4-101023
Date Collected: 10/10/23 13:15
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-4
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000387	U	0.00201	0.000387	mg/Kg		10/13/23 09:24	10/13/23 12:54	1
Toluene	<0.000458	U	0.00201	0.000458	mg/Kg		10/13/23 09:24	10/13/23 12:54	1
Ethylbenzene	<0.000567	U	0.00201	0.000567	mg/Kg		10/13/23 09:24	10/13/23 12:54	1
m-Xylene & p-Xylene	<0.00101	U	0.00402	0.00101	mg/Kg		10/13/23 09:24	10/13/23 12:54	1
o-Xylene	**0.000389**	**J**	0.00201	0.000345	mg/Kg		10/13/23 09:24	10/13/23 12:54	1
Xylenes, Total	<0.00101	U	0.00402	0.00101	mg/Kg		10/13/23 09:24	10/13/23 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*	*10/13/23 09:24*	*10/13/23 12:54*	*1*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*	*10/13/23 09:24*	*10/13/23 12:54*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00101	U	0.00402	0.00101	mg/Kg			10/13/23 12:54	1

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**33.0**	**J**	50.1	15.0	mg/Kg			10/12/23 18:38	1

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	**16.7**	**J**	50.1	15.0	mg/Kg		10/12/23 10:42	10/12/23 18:38	1
Diesel Range Organics (Over C10-C28)	**16.3**	**J**	50.1	15.0	mg/Kg		10/12/23 10:42	10/12/23 18:38	1
OII Range Organics (Over C28-C36)	<15.0	U	50.1	15.0	mg/Kg		10/12/23 10:42	10/12/23 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*131*	*S1+*	*70 - 130*	*10/12/23 10:42*	*10/12/23 18:38*	*1*
o-Terphenyl	*125*		*70 - 130*	*10/12/23 10:42*	*10/12/23 18:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**98.2**		5.02	0.397	mg/Kg			10/17/23 15:24	1

Surrogate Summary

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-34337-1	S-1-101023	93	67 S1-
880-34337-1 MS	S-1-101023	114	112
880-34337-1 MSD	S-1-101023	112	103
880-34337-2	S-2-101023	90	80
880-34337-3	S-3-101023	92	76
880-34337-4	S-4-101023	90	81
LCS 880-64647/1-A	Lab Control Sample	134 S1+	87
LCSD 880-64647/2-A	Lab Control Sample Dup	125	98
MB 880-64647/5-A	Method Blank	72	97

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-34337-1	S-1-101023	137 S1+	129
880-34337-2	S-2-101023	139 S1+	132 S1+
880-34337-3	S-3-101023	138 S1+	131 S1+
880-34337-4	S-4-101023	131 S1+	125
LCS 880-64532/2-A	Lab Control Sample	117	136 S1+
LCSD 880-64532/3-A	Lab Control Sample Dup	82	88
MB 880-64532/1-A	Method Blank	196 S1+	182 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-64647/5-A
Matrix: Solid
Analysis Batch: 64625

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64647

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.000385	U	0.00200	0.000385	mg/Kg		10/13/23 09:24	10/13/23 11:31	1
Toluene	<0.000456	U	0.00200	0.000456	mg/Kg		10/13/23 09:24	10/13/23 11:31	1
Ethylbenzene	<0.000565	U	0.00200	0.000565	mg/Kg		10/13/23 09:24	10/13/23 11:31	1
m-Xylene & p-Xylene	<0.00101	U	0.00400	0.00101	mg/Kg		10/13/23 09:24	10/13/23 11:31	1
o-Xylene	<0.000344	U	0.00200	0.000344	mg/Kg		10/13/23 09:24	10/13/23 11:31	1
Xylenes, Total	<0.00101	U	0.00400	0.00101	mg/Kg		10/13/23 09:24	10/13/23 11:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*72*		*70 - 130*	*10/13/23 09:24*	*10/13/23 11:31*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*	*10/13/23 09:24*	*10/13/23 11:31*	*1*

Lab Sample ID: LCS 880-64647/1-A
Matrix: Solid
Analysis Batch: 64625

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64647

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.08039		mg/Kg		80	70 - 130
Toluene	0.100	0.09332		mg/Kg		93	70 - 130
Ethylbenzene	0.100	0.1087		mg/Kg		109	70 - 130
m-Xylene & p-Xylene	0.200	0.2347		mg/Kg		117	70 - 130
o-Xylene	0.100	0.1200		mg/Kg		120	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*134*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*

Lab Sample ID: LCSD 880-64647/2-A
Matrix: Solid
Analysis Batch: 64625

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64647

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.07386		mg/Kg		74	70 - 130	8	35
Toluene	0.100	0.08034		mg/Kg		80	70 - 130	15	35
Ethylbenzene	0.100	0.09404		mg/Kg		94	70 - 130	14	35
m-Xylene & p-Xylene	0.200	0.2005		mg/Kg		100	70 - 130	16	35
o-Xylene	0.100	0.1014		mg/Kg		101	70 - 130	17	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 880-34337-1 MS
Matrix: Solid
Analysis Batch: 64625

Client Sample ID: S-1-101023
Prep Type: Total/NA
Prep Batch: 64647

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.000383	U F1	0.0996	0.08297		mg/Kg		83	70 - 130
Toluene	<0.000453	U F1	0.0996	0.08667		mg/Kg		87	70 - 130

QC Sample Results

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-34337-1 MS
Matrix: Solid
Analysis Batch: 64625

Client Sample ID: S-1-101023
Prep Type: Total/NA
Prep Batch: 64647

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.000562	U F1	0.0996	0.09407		mg/Kg		94	70 - 130
m-Xylene & p-Xylene	<0.00100	U F1	0.199	0.1989		mg/Kg		100	70 - 130
o-Xylene	<0.000342	U F1	0.0996	0.09993		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*

Lab Sample ID: 880-34337-1 MSD
Matrix: Solid
Analysis Batch: 64625

Client Sample ID: S-1-101023
Prep Type: Total/NA
Prep Batch: 64647

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.000383	U F1	0.0990	0.08057		mg/Kg		81	70 - 130	3	35
Toluene	<0.000453	U F1	0.0990	0.07923		mg/Kg		80	70 - 130	9	35
Ethylbenzene	<0.000562	U F1	0.0990	0.08576		mg/Kg		87	70 - 130	9	35
m-Xylene & p-Xylene	<0.00100	U F1	0.198	0.1831		mg/Kg		92	70 - 130	8	35
o-Xylene	<0.000342	U F1	0.0990	0.09241		mg/Kg		93	70 - 130	8	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-64532/1-A
Matrix: Solid
Analysis Batch: 64515

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 64532

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<15.0	U	50.0	15.0	mg/Kg		10/12/23 08:00	10/12/23 08:09	1
Diesel Range Organics (Over C10-C28)	<15.0	U	50.0	15.0	mg/Kg		10/12/23 08:00	10/12/23 08:09	1
OII Range Organics (Over C28-C36)	<15.0	U	50.0	15.0	mg/Kg		10/12/23 08:00	10/12/23 08:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*196*	*S1+*	*70 - 130*	*10/12/23 08:00*	*10/12/23 08:09*	*1*
o-Terphenyl	*182*	*S1+*	*70 - 130*	*10/12/23 08:00*	*10/12/23 08:09*	*1*

Lab Sample ID: LCS 880-64532/2-A
Matrix: Solid
Analysis Batch: 64515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64532

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	843.0		mg/Kg		84	70 - 130
Diesel Range Organics (Over C10-C28)	1000	878.5		mg/Kg		88	70 - 130

Eurofins Midland

QC Sample Results

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-64532/2-A
Matrix: Solid
Analysis Batch: 64515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 64532

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	117		70 - 130
o-Terphenyl	136	S1+	70 - 130

Lab Sample ID: LCSD 880-64532/3-A
Matrix: Solid
Analysis Batch: 64515

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 64532

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	798.2		mg/Kg		80	70 - 130	5	20
Diesel Range Organics (Over C10-C28)			1000	772.7		mg/Kg		77	70 - 130	13	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	82		70 - 130
o-Terphenyl	88		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-64572/1-A
Matrix: Solid
Analysis Batch: 64702

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.395	U	5.00	0.395	mg/Kg			10/17/23 14:05	1

Lab Sample ID: LCS 880-64572/2-A
Matrix: Solid
Analysis Batch: 64702

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	247.1		mg/Kg		99	90 - 110		

Lab Sample ID: LCSD 880-64572/3-A
Matrix: Solid
Analysis Batch: 64702

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	247.7		mg/Kg		99	90 - 110	0	20

QC Association Summary

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

GC VOA

Analysis Batch: 64625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Total/NA	Solid	8021B	64647
880-34337-2	S-2-101023	Total/NA	Solid	8021B	64647
880-34337-3	S-3-101023	Total/NA	Solid	8021B	64647
880-34337-4	S-4-101023	Total/NA	Solid	8021B	64647
MB 880-64647/5-A	Method Blank	Total/NA	Solid	8021B	64647
LCS 880-64647/1-A	Lab Control Sample	Total/NA	Solid	8021B	64647
LCSD 880-64647/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	64647
880-34337-1 MS	S-1-101023	Total/NA	Solid	8021B	64647
880-34337-1 MSD	S-1-101023	Total/NA	Solid	8021B	64647

Prep Batch: 64647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Total/NA	Solid	5030B	
880-34337-2	S-2-101023	Total/NA	Solid	5030B	
880-34337-3	S-3-101023	Total/NA	Solid	5030B	
880-34337-4	S-4-101023	Total/NA	Solid	5030B	
MB 880-64647/5-A	Method Blank	Total/NA	Solid	5030B	
LCS 880-64647/1-A	Lab Control Sample	Total/NA	Solid	5030B	
LCSD 880-64647/2-A	Lab Control Sample Dup	Total/NA	Solid	5030B	
880-34337-1 MS	S-1-101023	Total/NA	Solid	5030B	
880-34337-1 MSD	S-1-101023	Total/NA	Solid	5030B	

Analysis Batch: 64826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Total/NA	Solid	Total BTEX	
880-34337-2	S-2-101023	Total/NA	Solid	Total BTEX	
880-34337-3	S-3-101023	Total/NA	Solid	Total BTEX	
880-34337-4	S-4-101023	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 64515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Total/NA	Solid	8015B NM	64532
880-34337-2	S-2-101023	Total/NA	Solid	8015B NM	64532
880-34337-3	S-3-101023	Total/NA	Solid	8015B NM	64532
880-34337-4	S-4-101023	Total/NA	Solid	8015B NM	64532
MB 880-64532/1-A	Method Blank	Total/NA	Solid	8015B NM	64532
LCS 880-64532/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	64532
LCSD 880-64532/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	64532

Prep Batch: 64532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Total/NA	Solid	8015NM Prep	
880-34337-2	S-2-101023	Total/NA	Solid	8015NM Prep	
880-34337-3	S-3-101023	Total/NA	Solid	8015NM Prep	
880-34337-4	S-4-101023	Total/NA	Solid	8015NM Prep	
MB 880-64532/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-64532/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-64532/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

GC Semi VOA

Analysis Batch: 64659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Total/NA	Solid	8015 NM	
880-34337-2	S-2-101023	Total/NA	Solid	8015 NM	
880-34337-3	S-3-101023	Total/NA	Solid	8015 NM	
880-34337-4	S-4-101023	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 64572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Soluble	Solid	DI Leach	
880-34337-2	S-2-101023	Soluble	Solid	DI Leach	
880-34337-3	S-3-101023	Soluble	Solid	DI Leach	
880-34337-4	S-4-101023	Soluble	Solid	DI Leach	
MB 880-64572/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-64572/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-64572/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 64702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-34337-1	S-1-101023	Soluble	Solid	300.0	64572
880-34337-2	S-2-101023	Soluble	Solid	300.0	64572
880-34337-3	S-3-101023	Soluble	Solid	300.0	64572
880-34337-4	S-4-101023	Soluble	Solid	300.0	64572
MB 880-64572/1-A	Method Blank	Soluble	Solid	300.0	64572
LCS 880-64572/2-A	Lab Control Sample	Soluble	Solid	300.0	64572
LCSD 880-64572/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	64572

Lab Chronicle

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Client Sample ID: S-1-101023
Date Collected: 10/10/23 12:30
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.03 g	5 mL	64647	10/13/23 09:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64625	10/13/23 13:55	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64826	10/13/23 13:55	SM	EET MID
Total/NA	Analysis	8015 NM		1			64659	10/12/23 17:32	SM	EET MID
Total/NA	Prep	8015NM Prep			9.91 g	10 mL	64532	10/12/23 10:42	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64515	10/12/23 17:32	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	64572	10/12/23 14:20	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64702	10/17/23 14:56	CH	EET MID

Client Sample ID: S-2-101023
Date Collected: 10/10/23 12:45
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.01 g	5 mL	64647	10/13/23 09:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64625	10/13/23 17:31	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64826	10/13/23 17:31	SM	EET MID
Total/NA	Analysis	8015 NM		1			64659	10/12/23 17:54	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	64532	10/12/23 10:42	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64515	10/12/23 17:54	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	64572	10/12/23 14:20	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64702	10/17/23 15:13	CH	EET MID

Client Sample ID: S-3-101023
Date Collected: 10/10/23 13:00
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.97 g	5 mL	64647	10/13/23 09:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64625	10/13/23 12:33	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64826	10/13/23 12:33	SM	EET MID
Total/NA	Analysis	8015 NM		1			64659	10/12/23 18:16	SM	EET MID
Total/NA	Prep	8015NM Prep			9.96 g	10 mL	64532	10/12/23 10:42	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64515	10/12/23 18:16	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	64572	10/12/23 14:20	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64702	10/17/23 15:19	CH	EET MID

Client Sample ID: S-4-101023
Date Collected: 10/10/23 13:15
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.98 g	5 mL	64647	10/13/23 09:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	64625	10/13/23 12:54	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			64826	10/13/23 12:54	SM	EET MID

Eurofins Midland

Lab Chronicle

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Client Sample ID: S-4-101023

Date Collected: 10/10/23 13:15
Date Received: 10/12/23 08:58

Lab Sample ID: 880-34337-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			64659	10/12/23 18:38	SM	EET MID
Total/NA	Prep	8015NM Prep			9.99 g	10 mL	64532	10/12/23 10:42	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	64515	10/12/23 18:38	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	64572	10/12/23 14:20	AG	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	64702	10/17/23 15:24	CH	EET MID

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5030B	Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: ARCADIS US Inc
Project/Site: MC Fed #014

Job ID: 880-34337-1
SDG: Lea County, NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-34337-1	S-1-101023	Solid	10/10/23 12:30	10/12/23 08:58
880-34337-2	S-2-101023	Solid	10/10/23 12:45	10/12/23 08:58
880-34337-3	S-3-101023	Solid	10/10/23 13:00	10/12/23 08:58
880-34337-4	S-4-101023	Solid	10/10/23 13:15	10/12/23 08:58

Eurofins Midland
1211 W Florida Ave
Midland TX 79701
Phone (432) 704-5440

Chain of Custody Record

880-34337 Chain of Custody

Client Information	Sampler: Heath Boyd	Lab PM: Builes John	Carrier Tracking No:
Client Contact: Justin Nixon	Phone: 575-942-0798	E-Mail: John.Builes@et.eurofinsus.com	State of Origin: NM
Company: ARCADIS US Inc	PWSID:		
Address: 1004 North Big Spring Suite 300	Due Date Requested:		
City: Midland	TAT Requested (days): Standard		
State, Zip: TX 79701	Compliance Project: Δ Yes Δ No		
Phone: 432-296-9547(Tel)	PO #: 30197424-03		
Email: Justin.Nixon@arcadis.com	WO #:		
Project Name: MC Fed #014	Project #: 88001922		
Site: Lea County, NM	SSOW#:		

Analysis Requested

Job #:

Preservation Codes

A HCL, B NaOH, C Zn Acetate, D Nitric Acid, E NaHSO4, F MeOH, G Amchlor, H Ascorbic Acid, I Ice, J DI Water, K EDTA, L EDA, M Hexane, N None, O - AsNaO2, P Na2O4S, Q Na2SO3, R Na2S2O3, S H2SO4, T TSP Dodecahydrate, U Acetone, V MCAA, W pH 4-5, Y Trizma, Z other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGFM_28D, 8015MOD_NM, 8021B	Total Number of containers	Special Instructions/Note
			Preservation Code:				N		
S-1-101023	10/10/23	1230	G	Solid			X		
S-2-101023	"	1245	"	Solid			X		
S-3-101023	"	1300	"	Solid			X		
S-4-101023	X	1315	X	Solid			X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I II III IV Other (specify)

Special Instructions/QC Requirements.

Empty Kit Relinquished by	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Mitchell Rodriguez Mitchell Rodriguez	10-12-23 1885	Arcadis		10/12/23	
2	Relinquished by	Date/Time	Company	Received by	Date/Time 859	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No

Cooler Temperature(s) °C and Other Remarks. 1.3/1.5

Ver 01/16/2019

Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 880-34337-1
SDG Number: Lea County, NM

Login Number: 34337
List Number: 1
Creator: Rodriguez, Leticia

List Source: Eurofins Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Appendix E

NMOCD Correspondence

From: Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Sent: Thursday, April 25, 2024 3:42 PM
To: Nixon, Justin
Subject: FW: [EXTERNAL] RE: COP - NMOCD Spur Letter Request

fyi

From: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Sent: Wednesday, April 24, 2024 9:46 AM
To: Braidy Moulder <bmoulder@spurenergy.com>
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>; Brad Coffey <Brad@spurenergy.com>; Todd Mucha <Todd@spurenergy.com>; Katherine Purvis <katherine.purvis@spurenergy.com>
Subject: RE: [EXTERNAL] RE: COP - NMOCD Spur Letter Request

Braidy,

Thank you for following up with this email after our conversation yesterday.

Ike,

Please ensure that a copy of this correspondence is included in the deferral requests.

Thank you,
Brittany Hall ● Environmental Specialist
Environmental Bureau Projects Group
EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87110
505.517.5333 | Brittany.Hall@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd/

Please be advised that the new Digital C-141 is live as of December 1, 2023. Please review the new Digital C-141 submission Dec 1, 2023 Guidance document posted on the EMRND Website prior to submitting any C-141s. The guidance documents can be found at https://www.emnrd.nm.gov/ocd/ocd-announcements-and-notifications/ or https://www.emnrd.nm.gov/ocd/ocd-forms/.

From: Braidy Moulder <bmoulder@spurenergy.com>
Sent: Wednesday, April 24, 2024 8:18 AM
To: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Cc: Tavarez, Ike <Ike.Tavarez@conocophillips.com>; Brad Coffey <Brad@spurenergy.com>; Todd Mucha

<Todd@spurenergy.com>; Katherine Purvis <katherine.purvis@spurenergy.com>
Subject: [EXTERNAL] RE: COP - NMOCD Spur Letter Request

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Brittany, Spur Energy Partners approves of the granting of the Deferrals for the 2 below listed COG/ConocoPhillips ACO releases. These Deferrals must meet the criteria as set forth by the NMOCD and ultimately be approved by the NMOCD.

Braidy Moulder
EHS Manager
Spur Energy Partners, LLC.
713-264-2517

From: Tavarez, Ike <Ike.Tavarez@conocophillips.com>
Sent: Tuesday, April 2, 2024 1:53 PM
To: Braidy Moulder <bmoulder@spurenergy.com>
Subject: FW: COP - NMOCD Spur Letter Request

Braidy,

As discussed, the OCD is requesting a letter from Spur on the deferment sites (COG retained liabilities) that are located on Spur properties. This letter will be submitted with our deferment reports and will be going into the OCD incident files. Tetra Tech has drafted a letter for your review as a go-by. Please review and make any revisions to the letter or send me your version.

Currently, COP has 2 Spur locations and OCD is requesting letters from Spur to approve the deferment plans. I have attached the OCD denials and request. Below are the 2 deferment sites. Please call me if you have questions or need additional information, thanks

- GC Federal 027 (nOY1732453631)
  (30-025-38738)

- MC Federal 014 (fAPP2203356307)
  (30-025-39264

Ike Tavarez, P. G. | **Risk Management & Remediation** | **ConocoPhillips**
O:432-685-2573| **C:**432-701-8630 | 600 W. Illinois Avenue, Midland, Texas 79701

Disclaimer

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Santa Fe, NM 87505

QUESTIONS

Action 338089

QUESTIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 338089
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nOY1732453631**
Incident Name	**NOY1732453631 MC FEDERAL #014 @ 30-025-38738**
Incident Type	**Oil Release**
Incident Status	**Deferral Request Received**
Incident Well	**[30-025-38738] MC FEDERAL #014**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	MC FEDERAL #014
Date Release Discovered	11/19/2017
Surface Owner	Federal

Incident Details	
Please answer all the questions in this group.	
Incident Type	Oil Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Corrosion | Pipeline (Any) | Crude Oil | Released: 30 BBL | Recovered: 29 BBL | Lost: 1 BBL.
Produced Water Released (bbls) Details	*Not answered.*
Is the concentration of chloride in the produced water >10,000 mg/l	*Not answered.*
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

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QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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.

I hereby agree and sign off to the above statement	Name: Jared Stoffel Title: Scientist Email: jstoffel@trccompanies.com Date: 04/26/2024

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QUESTIONS (continued)

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	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). 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 in feet below ground surface (ft bgs)	Between 75 and 100 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between ½ and 1 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Between 1 and 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	2170
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	36900
GRO+DRO (EPA SW-846 Method 8015M)	36900
BTEX (EPA SW-846 Method 8021B or 8260B)	816
Benzene (EPA SW-846 Method 8021B or 8260B)	69.3
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	10/10/2023
On what date will (or did) the final sampling or liner inspection occur	10/10/2023
On what date will (or was) the remediation complete(d)	10/10/2023
What is the estimated surface area (in square feet) that will be reclaimed	2000
What is the estimated volume (in cubic yards) that will be reclaimed	296
What is the estimated surface area (in square feet) that will be remediated	2000
What is the estimated volume (in cubic yards) that will be remediated	296
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

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QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	Yes
Other Non-listed Remedial Process. Please specify	Entire site to be deferred as entirety is within an active tank facility, which would require major deconstruction.
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	

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.

I hereby agree and sign off to the above statement	Name: Jared Stoffel Title: Scientist Email: jstoffel@trccompanies.com Date: 04/26/2024

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

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QUESTIONS (continued)

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	Action Number: 338089
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Is the remaining contamination in areas immediately under or around production equipment where remediation could cause a major facility deconstruction	Yes
Please list or describe the production equipment and how (re)moving the equipment would cause major facility deconstruction	The entire tank battery, including pipes, tanks, separators and heater treaters are within a lined and bermed facility. The equipment would have to be removed, then the liner would have to removed prior to enacting remediation. Any remediation activities in this area constitute a health and safety risk to the remediation workers and constitute an environmental risk of release.
What is the remaining surface area (in square feet) that will still need to be remediated if a deferral is granted	2000
What is the remaining volume (in cubic yards) that will still need to be remediated if a deferral is granted	296
Per Paragraph (2) of Subsection C of 19.15.29.12 NMAC if contamination is located in areas immediately under or around production equipment such as production tanks, wellheads and pipelines where remediation could cause a major facility deconstruction, the remediation, restoration and reclamation may be deferred with division written approval until the equipment is removed during other operations, or when the well or facility is plugged or abandoned, whichever comes first.	
Enter the facility ID (f#) on which this deferral should be granted	*Not answered.*
Enter the well API (30-) on which this deferral should be granted	30-025-38738 MC FEDERAL #014
Contamination does not cause an imminent risk to human health, the environment, or groundwater	True
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
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.	
I hereby agree and sign off to the above statement	Name: Jared Stoffel Title: Scientist Email: jstoffel@trccompanies.com Date: 04/26/2024

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QUESTIONS (continued)

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	Action Number: 338089
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**319118**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**10/10/2023**
What was the (estimated) number of samples that were to be gathered	**10**
What was the sampling surface area in square feet	**5000**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	No

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CONDITIONS

Action 338089

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Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
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CONDITIONS

Created By	Condition	Condition Date
bhall	Deferral approved. Deferral of AH-01 through AH-04 and BH-1 and BH-2 is approved until plugging and abandonment or a major facility deconstruction, whichever comes first. A complete and accurate remediation closure report and/or reclamation report will need to be submitted at that time.	5/1/2024