[Sheldon L. Hitchcock]
[HSE Coordinator]

REVIEWED
By Olivia Yu at 3:53 pm, Jul 20, 2018

NMOCD issues a 1RP-5131 for this release.

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

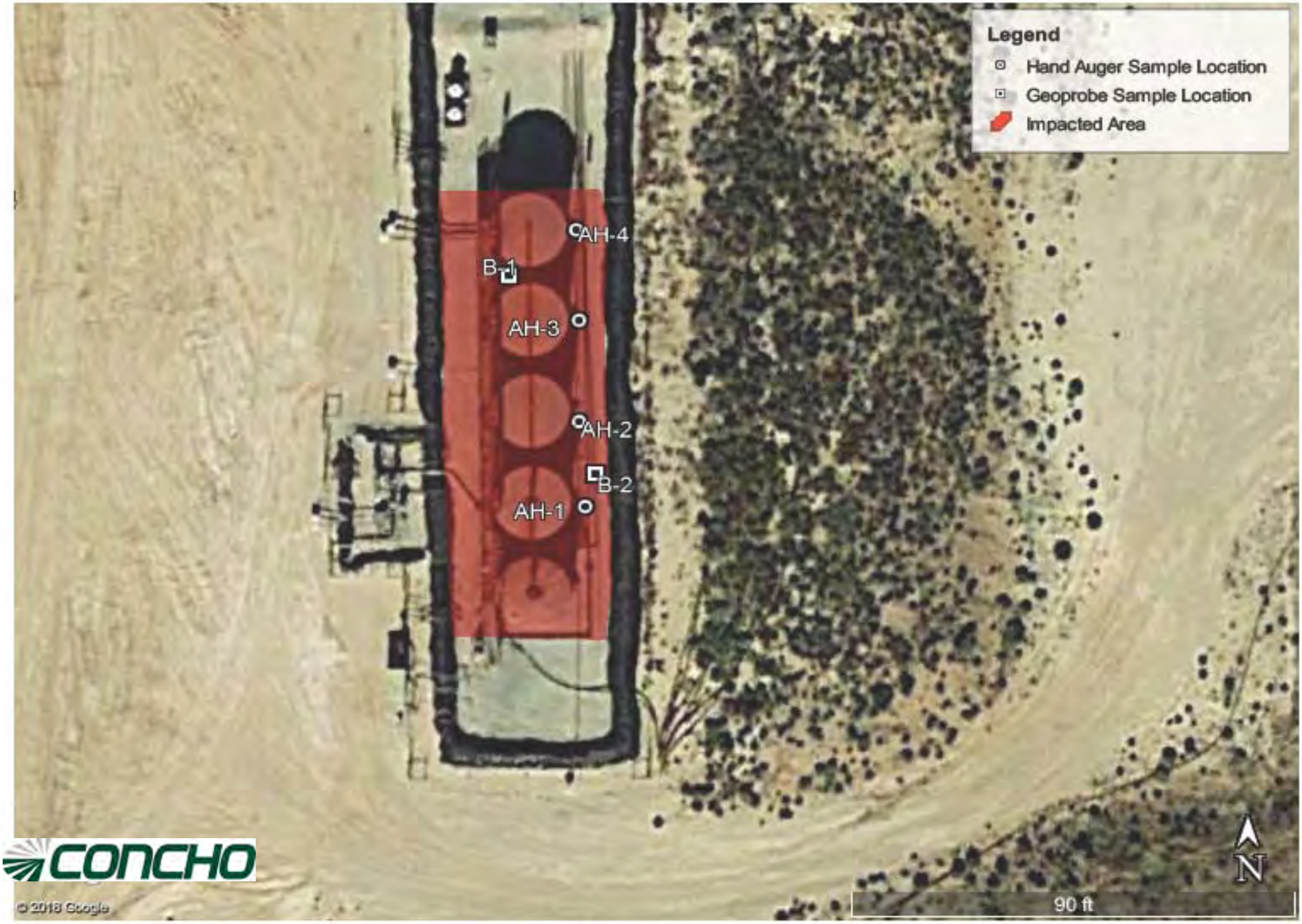
Enclosed:

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	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

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

Jessica Kramer
Project Assistant

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

Jessica Kramer
Project Assistant

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

Jessica Kramer
Project Assistant

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					

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

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

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	

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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:	579572-006	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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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:	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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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:	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	

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:	579572-009	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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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:	579572-009	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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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:	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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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:	579572-012	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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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:	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	

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:	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

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 [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]

LCS = Laboratory Control Sample MS = Matrix Spike
A = Parent Result B = Spike Added
C = MS/LCS Result D = MSD/LCSD % Rec
E = MSD/LCSD Result

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

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 [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
E = MSD/LCSD Result

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

CHAIN OF CUSTODY

Page 1 Of 2

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

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 10:00A	Sid Butler 3-16-18 10A	Sid Butler	3-16-18 1145 A	
2						3/19/18 8:00
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	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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Dallas Texas (214-902-0300) | Midland, Texas (432-704-5251)

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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	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Analytical Information: 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 blow 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	Sid Butler 3-16-18 10A	Sid Butler 1645A	3-16-18 1145 A	2 3/19/18 8:00
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
5	Relinquished by:	Date Time:	Received By:	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.

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

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

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 - 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

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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 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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1 OF 2

CARDINAL Laboratories
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		4-11-18	12:00PM	X	X	X
2	BH-1 6'					✓					x				X	X	X
3	BH-1 8'					✓					x				X	X	X
4	BH-1 10'					✓					x				X	X	X
5	BH-1 12'					✓					x				X	X	X
6	BH-1 16'					✓					x				X	X	X
7	BH-1 18'					✓					x				X	X	X
8	BH-2 4'					✓					x				X	X	X
9	BH-2 6'					✓					x				X	X	X
10	BH-2 8'					✓					x				X	X	X

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

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

FORM-006 R 2.0

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

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 #:**	

FOR LAB USE ONLY			(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST													
Lab I.D.	**Sample I.D.**				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	**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 consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

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

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

Sample Condition Cool	Intact	**CHECKED BY: (Initials)**
☑ Yes	☑ Yes	
☐ No	☐ No	

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

SEE PAGE #1

FORM-006 R 2.0

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