[Sheldon L. Hitchcock]
[HSE Coordinator]

APPROVED
By Olivia Yu at 4:03 pm, May 01, 2018

NMOCD approves of the delineation completed for 1RP-4904. Confirmation sidewalls and bottoms required for the areas represented by T-3 and T-4.

April 19, 2018

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

Henryetta Price
Bureau of Land Management, CFO
620 E. Green Street
Carlsbad, NM 88220

Re: Work Plan
MC Southeast Battery
API #: 30-025-35252
RP#: 1RP-4917
Unit Letter H Section 21, Township 17S, Range 32E
Lea **County, NM**

Ms. Yu/Ms. Price,

COG Operating, LLC (COG) is pleased to submit for your consideration the following remediation work plan for the MC Southeast Battery. This plan is in response to an oil and produced water release that occurred on January 4, 2018. Subsequent to the release a C-141 initial report was approved by the New Mexico Oil Conservation Division (NMOCD) on January 8, 2018

BACKGROUND

The MC Southeast Battery is located in Unit Letter H, Section 21, Township 17 South and Range 32 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.820527 North and -103.765465 West.

On January 4, 2018, a gasket on the heater treater failed resulting in the release of approximately ten (10) barrels (bbls) of oil and one-hundred and eighty (180) bbls of produced water. The overspray impacted the lined tank battery and the adjacent pasture. A vacuum truck was able to recover approximately five (5) bbls of oil and one-hundred and seventy-five (175) bbls of produced water.

On February 15, 2018 COG personnel conducted a site assessment and soil sampling in order to define the area in the pasture that was impacted by overspray. Upon receipt of analytical data from the soil sampling event that took place on February 15, 2018 it was determined that further vertical delineation would be required at sample location T-4. On March 20, 2018, a hand auger was utilized to further vertically delineate this sample location (labeled AH-4). (Site diagram Appendix I)

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

2/15/2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)
T-1	0	<0.002	<0.002	394	164
T-2	0			667	388
T-2	1	--	--	21.6	--
T-3	0			1110	47.1
T-3	1	--	--	324	--
T-4	0	<0.0398	46.0	7110	10100
T-4	1	--	--	4010	--
T-4	2	--	--	3670	--
T-5	0	<0.002	<0.002	134	17.7

(--) Analysis not requested

March 20, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)
AH-4	3	<0.050	<0.300	175	14.7
AH-4	4	<0.050	<0.300	1600	447.1
AH-4	5	<0.050	<0.300	13.4	<10.0

PROPOSED REMEDIAL ACTIONS

- The impacted gravel within the lined facility has been removed and hauled to an NMOCD approved solid waste disposal facility. The liner has been inspected for damage and found to have structural integrity to retain free fluids. The gravel has been replaced.

- The impacted area in the vicinity of sample location T-3 will be excavated to a depth of 1-foot BGS.

- The impacted area in the vicinity of sample location T-4/AH-4 will be excavated to a depth of 5-feet BGS.

- All of the excavated material will be hauled to an NMOCD approved solid waste disposal facility.

- The excavated area will be backfilled with clean "like" material, contoured to match the surrounding terrain and seeded with BLM seed mixture #2.

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

Sincerely,

Sheldon Hitchcock

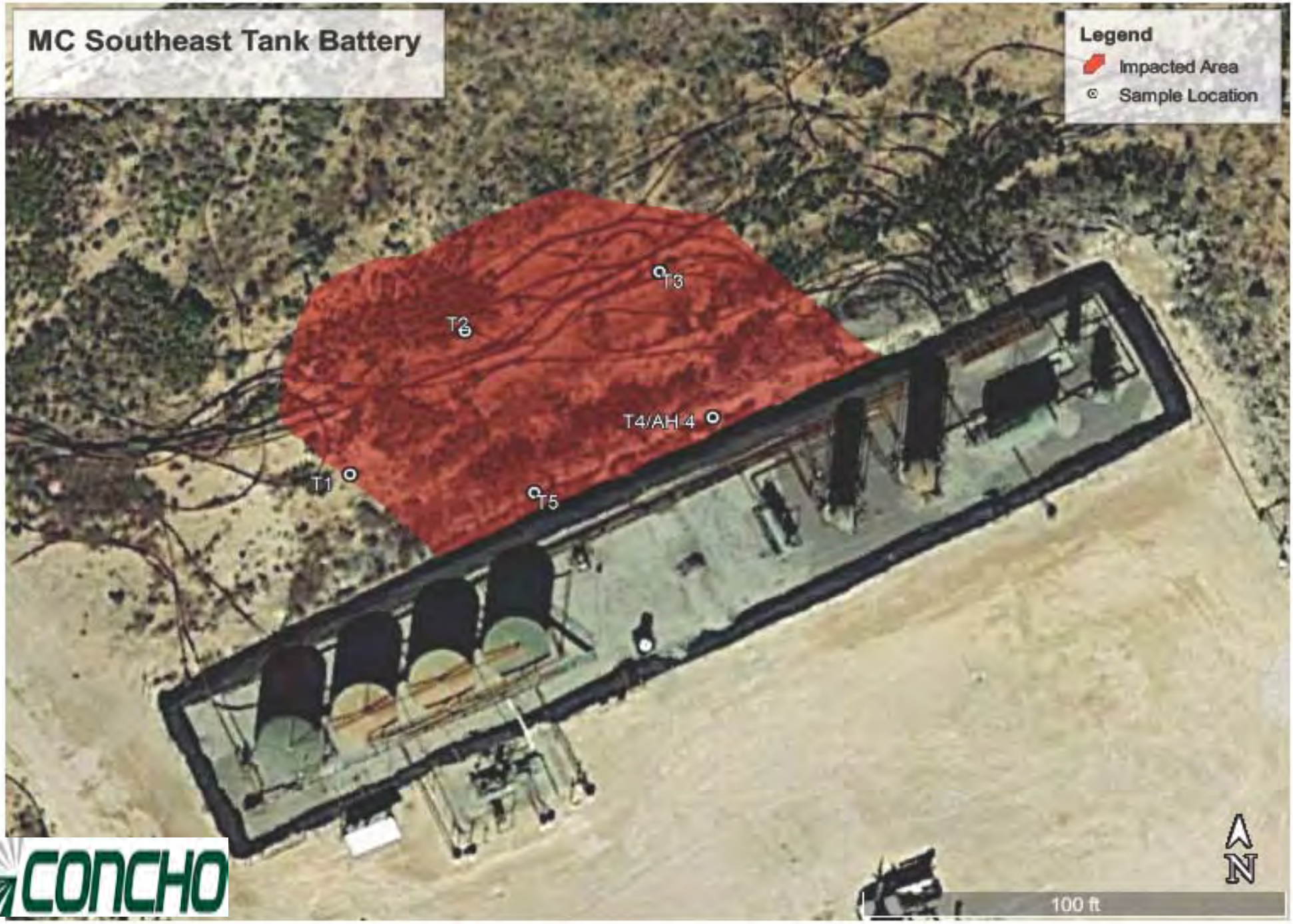
Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

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

MC Southeast Tank Battery



APPENDIX II

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

(R=POD has been replaced, O=orphaned, C=the file is closed)

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

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	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	1259	400		
RA 10175		LE		2	1	28	17S	32E	614814	3631005*	1448	158		
RA 12020 POD1		LE	2	2	1	28	17S	32E	614828	3630954	1483	120	81	39
RA 08855		LE	4	1	1	10	17S	32E	616061	3635742*	3552	158		
RA 11911 POD1		LE	1	3	1	24	17S	32E	619192	3632296	3588	35		
RA 09505		LE	2	2	1	10	17S	32E	616462	3635944	3823	147		
L 13050 POD1	L	LE	2	2	1	10	17S	32E	616463	3635945*	3823	156	132	24
RA 09505 S		LE	2	2	1	10	17S	32E	616463	3635945*	3823	144		
RA 11734 POD1		LE	2	2	1	10	17S	32E	616556	3635929	3830	165		
RA 11684 POD1		LE	1	1	4	11	17S	32E	618216	3635124	3906	275		
RA 11684 POD5		LE	3	1	4	11	17S	32E	618353	3635047	3943	275		
L 13047 POD1	L	LE				11	17S	32E	618187	3635254*	3985	140		

Average Depth to Water: **106 feet**

Minimum Depth: **81 feet**

Maximum Depth: **132 feet**

Record Count: 12

Basin/County Search:

County: Lea

UTMNAD83 Radius Search (in meters):

Easting (X): 615604 **Northing (Y):** 3632219 **Radius:** 4000

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

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 Southeast Battery**	Facility Type**: Tank Battery**

Surface Owner: BLM	Mineral Owner: Federal	API No.: 30-025-35252

LOCATION OF RELEASE

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

Latitude: 32.820527 **Longitude**: -103.765465 NAD83

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 10bbls Oil & 180bbls PW	Volume Recovered: 5bbls Oil & 175bbls PW
Source of Release: Heater Treater	Date and Hour of Occurrence: 1/4/2018	Date and Hour of Discovery: 1/4/2018 4:30am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Oliva Yu-NMOCD Shelly Tucker-BLM	
By Whom? Rebecca Haskell	Date and Hour: 1/4/2018 12:34pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED
By Olivia Yu at 1:32 pm, Jan 08, 2018

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A gasket on the heater treater failed resulting in the release of approximately 10bbls of oil and 180bbls of produced water. The gasket was replaced.

Describe Area Affected and Cleanup Action Taken.*

The majority of the fluid was contained within the lined facility. However there was overspray in the pasture measuring approximately 400' x 115'. A vacuum truck was dispatched to recover 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: Sheldon Hitchcock

Printed Name: Sheldon L. Hitchcock

Title: HSE Coordinator

E-mail Address: slhitchcock@concho.com

Date: 1/8/2018 Phone: 575-746-2010

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 1/8/2018 Expiration Date:

Conditions of Approval:
see attached directive

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. Confirmatory laboratory analyses of discrete soil samples (0-6" bgs) from the impacted pasture area are required.

Attached ☑

* Attach Additional Sheets If Necessary

nOY1800849426

pOY1800849665

1RP-4917

APPENDIX IV

Certificate of Analysis Summary 576847

COG Operating LLC, Artesia, NM

Project Name: MC Southeast Battery

Project Id:
Contact: Dakota Neel
Project Location:

Date Received in Lab: Mon Feb-19-18 09:08 am
Report Date: 06-MAR-18
Project Manager: Kelsey Brooks

Analysis Requested																			
	Lab Id:	576847-001		576847-004		576847-005		576847-007		576847-008		576847-010							
	Field Id:	T-1		T-2		T-2		T-3		T-3		T-4							
	Depth:	0- ft		0- ft		1- ft		0- ft		1- ft		0- ft							
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL							
	Sampled:	Feb-15-18 09:00		Feb-15-18 09:00		Feb-15-18 09:00		Feb-15-18 09:00		Feb-15-18 09:00		Feb-15-18 09:00							
BTEX by EPA 8021B	***Extracted:***	Feb-20-18 15:00		Feb-20-18 15:00				Feb-20-18 15:00				Feb-23-18 08:00							
	Analyzed:	Feb-21-18 23:26		Feb-21-18 23:07				Feb-21-18 22:48				Feb-23-18 15:09							
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL			mg/kg	RL						
Benzene		<0.00199	0.00199	<0.00201	0.00201			<0.00202	0.00202			<0.0398	0.0398						
Toluene		<0.00199	0.00199	<0.00201	0.00201			<0.00202	0.00202			1.06	0.0398						
Ethylbenzene		<0.00199	0.00199	<0.00201	0.00201			<0.00202	0.00202			24.1 D	0.994						
m,p-Xylenes		<0.00398	0.00398	<0.00402	0.00402			<0.00403	0.00403			13.3	0.0795						
o-Xylene		<0.00199	0.00199	<0.00201	0.00201			<0.00202	0.00202			7.53	0.0398						
Total Xylenes		<0.00199	0.00199	<0.00201	0.00201			<0.00202	0.00202			20.8	0.0398						
Total BTEX		<0.00199	0.00199	<0.00201	0.00201			<0.00202	0.00202			46.0	0.0398						
Chloride by EPA 300	***Extracted:***	Feb-23-18 13:30		Feb-23-18 13:30		Feb-27-18 18:00		Feb-23-18 13:30		Feb-27-18 18:00		Feb-23-18 13:30							
	Analyzed:	Feb-23-18 17:49		Feb-23-18 18:05		Feb-27-18 18:42		Feb-23-18 18:11		Feb-27-18 19:04		Feb-23-18 18:16							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Chloride		394	5.00	667	5.00	21.6	4.93	1110	4.95	324	4.96	7110	49.9						
TPH By SW8015 Mod	***Extracted:***	Feb-21-18 10:00		Feb-21-18 10:00				Feb-21-18 10:00				Feb-21-18 10:00							
	Analyzed:	Feb-21-18 12:35		Feb-21-18 13:00				Feb-21-18 13:28				Feb-22-18 11:57							
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL			mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0			<15.0	15.0			1320	149						
Diesel Range Organics (DRO)		164	15.0	388	15.0			47.1	15.0			8770	149						
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0			<15.0	15.0			<149	149						
Total TPH		164	15.0	388	15.0			47.1	15.0			10100	149						

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 576847

COG Operating LLC, Artesia, NM

Project Name: MC Southeast Battery

Project Id:
Contact: Dakota Neel
Project Location:

Date Received in Lab: Mon Feb-19-18 09:08 am
Report Date: 06-MAR-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	576847-011		576847-012		576847-013							
	Field Id:	T-4		T-4		T-5							
	Depth:	1- ft		2- ft		0- ft							
	Matrix:	SOIL		SOIL		SOIL							
	Sampled:	Feb-15-18 09:00		Feb-15-18 09:00		Feb-15-18 09:00							
BTEX by EPA 8021B	***Extracted:***					Feb-23-18 08:00							
	Analyzed:					Feb-23-18 14:31							
	Units/RL:					mg/kg	RL						
Benzene						<0.00202	0.00202						
Toluene						<0.00202	0.00202						
Ethylbenzene						<0.00202	0.00202						
m,p-Xylenes						<0.00403	0.00403						
o-Xylene						<0.00202	0.00202						
Total Xylenes						<0.00202	0.00202						
Total BTEX						<0.00202	0.00202						
Chloride by EPA 300	***Extracted:***	Feb-27-18 18:00		Mar-02-18 09:00		Feb-23-18 13:30							
	Analyzed:	Feb-27-18 18:49		Mar-02-18 10:52		Feb-23-18 18:21							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Chloride		4010	24.5	3670	24.8	134	5.00						
TPH By SW8015 Mod	***Extracted:***					Feb-20-18 07:00							
	Analyzed:					Feb-21-18 09:29							
	Units/RL:					mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)						<15.0	15.0						
Diesel Range Organics (DRO)						17.7	15.0						
Oil Range Hydrocarbons (ORO)						<15.0	15.0						
Total TPH						17.7	15.0						

Kelsey Brooks
Project Manager

Analytical Report 576847

for

COG Operating LLC

Project Manager: Dakota Neel

MC Southeast Battery

06-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)

06-MAR-18

Project Manager: **Dakota Neel**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **576847**
MC Southeast Battery
Project Address:

Dakota Neel:

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) 576847. 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. 576847 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,

Kelsey Brooks
Project Manager

Sample Cross Reference 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-1	S	02-15-18 09:00	0 ft	576847-001
T-2	S	02-15-18 09:00	0 ft	576847-004
T-2	S	02-15-18 09:00	1 ft	576847-005
T-3	S	02-15-18 09:00	0 ft	576847-007
T-3	S	02-15-18 09:00	1 ft	576847-008
T-4	S	02-15-18 09:00	0 ft	576847-010
T-4	S	02-15-18 09:00	1 ft	576847-011
T-4	S	02-15-18 09:00	2 ft	576847-012
T-5	S	02-15-18 09:00	0 ft	576847-013
T-1	S	02-15-18 09:00	1 ft	Not Analyzed
T-1	S	02-15-18 09:00	2 ft	Not Analyzed
T-2	S	02-15-18 09:00	2 ft	Not Analyzed
T-3	S	02-15-18 09:00	2 ft	Not Analyzed
T-5	S	02-15-18 09:00	1 ft	Not Analyzed
T-5	S	02-15-18 09:00	2 ft	Not Analyzed

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3041964 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3041987 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3042371 Inorganic Anions by EPA 300
Lab Sample ID 577603-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).
Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference.
Samples in the analytical batch are: 576847-005, -008, -011.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-1**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-001	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	OJS	Date Prep:	02.23.18 13.30	Basis:	Wet Weight
Seq Number:	3042082				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**394**	5.00	mg/kg	02.23.18 17.49		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.21.18 10.00	Basis:	Wet Weight
Seq Number:	3041818				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.21.18 12.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	**164**	15.0	mg/kg	02.21.18 12.35		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.21.18 12.35	U	1
Total TPH	PHC635	**164**	15.0	mg/kg	02.21.18 12.35		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	02.21.18 12.35	
o-Terphenyl	84-15-1	89	%	70-135	02.21.18 12.35	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-1**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-001	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	02.20.18 15.00	Basis:	Wet Weight
Seq Number:	3041964				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.21.18 23.26	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.21.18 23.26	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.21.18 23.26	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.21.18 23.26	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.21.18 23.26	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.21.18 23.26	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.21.18 23.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	85	%	80-120	02.21.18 23.26	
4-Bromofluorobenzene	460-00-4	102	%	80-120	02.21.18 23.26	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-2**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-004	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	OJS	Date Prep:	02.23.18 13.30	Basis:	Wet Weight
Seq Number:	3042082				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**667**	5.00	mg/kg	02.23.18 18.05		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.21.18 10.00	Basis:	Wet Weight
Seq Number:	3041818				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.21.18 13.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	**388**	15.0	mg/kg	02.21.18 13.00		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.21.18 13.00	U	1
Total TPH	PHC635	**388**	15.0	mg/kg	02.21.18 13.00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.21.18 13.00	
o-Terphenyl	84-15-1	102	%	70-135	02.21.18 13.00	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-2**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-004	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	02.20.18 15.00	Basis:	Wet Weight
Seq Number:	3041964				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.21.18 23.07	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.21.18 23.07	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.21.18 23.07	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.21.18 23.07	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.21.18 23.07	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.21.18 23.07	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.21.18 23.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	82	%	80-120	02.21.18 23.07	
4-Bromofluorobenzene	460-00-4	105	%	80-120	02.21.18 23.07	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-2**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-005	Date Collected:	02.15.18 09.00	Sample Depth:	1 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	02.27.18 18.00	Basis:	Wet Weight
Seq Number:	3042371				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**21.6**	4.93	mg/kg	02.27.18 18.42		1

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-3**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-007	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	OJS	Date Prep:	02.23.18 13.30	Basis:	Wet Weight
Seq Number:	3042082				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1110**	4.95	mg/kg	02.23.18 18.11		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.21.18 10.00	Basis:	Wet Weight
Seq Number:	3041818				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.21.18 13.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	**47.1**	15.0	mg/kg	02.21.18 13.28		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.21.18 13.28	U	1
Total TPH	PHC635	**47.1**	15.0	mg/kg	02.21.18 13.28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	02.21.18 13.28	
o-Terphenyl	84-15-1	103	%	70-135	02.21.18 13.28	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-3**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-007	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	02.20.18 15.00	Basis:	Wet Weight
Seq Number:	3041964				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.21.18 22.48	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.21.18 22.48	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.21.18 22.48	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	02.21.18 22.48	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.21.18 22.48	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.21.18 22.48	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.21.18 22.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	86	%	80-120	02.21.18 22.48	
4-Bromofluorobenzene	460-00-4	107	%	80-120	02.21.18 22.48	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-3**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-008	Date Collected:	02.15.18 09.00	Sample Depth:	1 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	02.27.18 18.00	Basis:	Wet Weight
Seq Number:	3042371				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**324**	4.96	mg/kg	02.27.18 19.04		1

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-4**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-010	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	OJS	Date Prep:	02.23.18 13.30	Basis:	Wet Weight
Seq Number:	3042082				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7110**	49.9	mg/kg	02.23.18 18.16		10

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.21.18 10.00	Basis:	Wet Weight
Seq Number:	3041818				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**1320**	149	mg/kg	02.22.18 11.57		10
Diesel Range Organics (DRO)	C10C28DRO	**8770**	149	mg/kg	02.22.18 11.57		10
Oil Range Hydrocarbons (ORO)	PHCG2835	<149	149	mg/kg	02.22.18 11.57	U	10
Total TPH	PHC635	**10100**	149	mg/kg	02.22.18 11.57		10

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	02.22.18 11.57	
o-Terphenyl	84-15-1	110	%	70-135	02.22.18 11.57	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-4**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-010	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	02.23.18 08.00	Basis:	Wet Weight
Seq Number:	3041987				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0398	0.0398	mg/kg	02.23.18 15.09	U	20
Toluene	108-88-3	**1.06**	0.0398	mg/kg	02.23.18 15.09		20
Ethylbenzene	100-41-4	**24.1**	0.994	mg/kg	02.23.18 13.11	D	500
m,p-Xylenes	179601-23-1	**13.3**	0.0795	mg/kg	02.23.18 15.09		20
o-Xylene	95-47-6	**7.53**	0.0398	mg/kg	02.23.18 15.09		20
Total Xylenes	1330-20-7	**20.8**	0.0398	mg/kg	02.23.18 15.09		20
Total BTEX		**46.0**	0.0398	mg/kg	02.23.18 13.11		500

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	80-120	02.23.18 15.09	
1,4-Difluorobenzene	540-36-3	81	%	80-120	02.23.18 15.09	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-4**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-011	Date Collected:	02.15.18 09.00	Sample Depth:	1 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	02.27.18 18.00	Basis:	Wet Weight
Seq Number:	3042371				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4010**	24.5	mg/kg	02.27.18 18.49		5

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-4**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-012	Date Collected:	02.15.18 09.00	Sample Depth:	2 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	03.02.18 09.00	Basis:	Wet Weight
Seq Number:	3042826				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3670**	24.8	mg/kg	03.02.18 10.52		5

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-5**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-013	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	LRI			% Moisture:	
Analyst:	OJS	Date Prep:	02.23.18 13.30	Basis:	Wet Weight
Seq Number:	3042082				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**134**	5.00	mg/kg	02.23.18 18.21		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.20.18 07.00	Basis:	Wet Weight
Seq Number:	3041815				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.21.18 09.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	**17.7**	15.0	mg/kg	02.21.18 09.29		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.21.18 09.29	U	1
Total TPH	PHC635	**17.7**	15.0	mg/kg	02.21.18 09.29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	02.21.18 09.29	
o-Terphenyl	84-15-1	107	%	70-135	02.21.18 09.29	

Certificate of Analytical Results 576847

COG Operating LLC, Artesia, NM

MC Southeast Battery

Sample Id:	**T-5**	Matrix:	Soil	Date Received:	02.19.18 09.08
Lab Sample Id:	576847-013	Date Collected:	02.15.18 09.00	Sample Depth:	0 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	02.23.18 08.00	Basis:	Wet Weight
Seq Number:	3041987				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.23.18 14.31	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	02.23.18 14.31	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.23.18 14.31	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	02.23.18 14.31	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	02.23.18 14.31	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	02.23.18 14.31	U	1
Total BTEX		<0.00202	0.00202	mg/kg	02.23.18 14.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	80	%	80-120	02.23.18 14.31	
4-Bromofluorobenzene	460-00-4	120	%	80-120	02.23.18 14.31	

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

+ NELAC certification not offered for this compound.

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

	Phone	Fax
4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

QC Summary 576847

COG Operating LLC

MC Southeast Battery

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3042082 Matrix: Solid Date Prep: 02.23.18
MB Sample Id: 7639674-1-BLK LCS Sample Id: 7639674-1-BKS LCSD Sample Id: 7639674-1-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	258	103	258	103	90-110	0	20	mg/kg	02.23.18 15:45	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3042371 Matrix: Solid Date Prep: 02.27.18
MB Sample Id: 7639874-1-BLK LCS Sample Id: 7639874-1-BKS LCSD Sample Id: 7639874-1-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	239	96	239	96	90-110	0	20	mg/kg	02.27.18 16:20	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3042826 Matrix: Solid Date Prep: 03.02.18
MB Sample Id: 7640118-1-BLK LCS Sample Id: 7640118-1-BKS LCSD Sample Id: 7640118-1-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	265	106	266	106	90-110	0	20	mg/kg	03.02.18 10:26	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3042082 Matrix: Soil Date Prep: 02.23.18
Parent Sample Id: 576852-003 MS Sample Id: 576852-003 S MSD Sample Id: 576852-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	295	247	525	93	533	96	90-110	2	20	mg/kg	02.23.18 16:12	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3042082 Matrix: Soil Date Prep: 02.23.18
Parent Sample Id: 576852-013 MS Sample Id: 576852-013 S MSD Sample Id: 576852-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	36.1	249	309	110	299	106	90-110	3	20	mg/kg	02.23.18 17:39	

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 576847

COG Operating LLC

MC Southeast Battery

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3042371 — Matrix: Soil — Date Prep: 02.27.18
Parent Sample Id: 576847-008 — MS Sample Id: 576847-008 S — MSD Sample Id: 576847-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	324	248	513	76	582	104	90-110	13	20	mg/kg	02.27.18 19:11	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3042371 — Matrix: Soil — Date Prep: 02.27.18
Parent Sample Id: 577603-002 — MS Sample Id: 577603-002 S — MSD Sample Id: 577603-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	151	250	394	97	395	98	90-110	0	20	mg/kg	02.27.18 17:28	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3042826 — Matrix: Soil — Date Prep: 03.02.18
Parent Sample Id: 577798-001 — MS Sample Id: 577798-001 S — MSD Sample Id: 577798-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	56.6	250	321	106	323	107	90-110	1	20	mg/kg	03.02.18 10:42	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3042826 — Matrix: Soil — Date Prep: 03.02.18
Parent Sample Id: 577798-002 — MS Sample Id: 577798-002 S — MSD Sample Id: 577798-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	322	249	606	114	596	110	90-110	2	20	mg/kg	03.02.18 11:56	X

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3041815 — Matrix: Solid — Date Prep: 02.20.18
MB Sample Id: 7639517-1-BLK — LCS Sample Id: 7639517-1-BKS — LCSD Sample Id: 7639517-1-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	875	88	868	87	70-135	1	35	mg/kg	02.20.18 08:17	
Diesel Range Organics (DRO)	<15.0	1000	963	96	961	96	70-135	0	35	mg/kg	02.20.18 08:17	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		109		107		70-135	%	02.20.18 08:17
o-Terphenyl	125		107		106		70-135	%	02.20.18 08:17

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 576847

COG Operating LLC

MC Southeast Battery

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3041818 Matrix: Solid Date Prep: 02.21.18
MB Sample Id: 7639556-1-BLK LCS Sample Id: 7639556-1-BKS LCSD Sample Id: 7639556-1-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	937	94	877	88	70-135	7	35	mg/kg	02.21.18 11:41	
Diesel Range Organics (DRO)	<15.0	1000	1010	101	949	95	70-135	6	35	mg/kg	02.21.18 11:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		119		109		70-135	%	02.21.18 11:41
o-Terphenyl	97		113		106		70-135	%	02.21.18 11:41

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3041815 Matrix: Soil Date Prep: 02.20.18
Parent Sample Id: 576746-001 MS Sample Id: 576746-001 S MSD Sample Id: 576746-001 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	868	87	858	86	70-135	1	35	mg/kg	02.20.18 09:34	
Diesel Range Organics (DRO)	<15.0	998	966	97	960	96	70-135	1	35	mg/kg	02.20.18 09:34	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	110		107		70-135	%	02.20.18 09:34
o-Terphenyl	106		105		70-135	%	02.20.18 09:34

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3041818 Matrix: Soil Date Prep: 02.21.18
Parent Sample Id: 576847-007 MS Sample Id: 576847-007 S MSD Sample Id: 576847-007 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	997	886	89	1010	101	70-135	13	35	mg/kg	02.21.18 13:53	
Diesel Range Organics (DRO)	47.1	997	1070	103	1100	106	70-135	3	35	mg/kg	02.21.18 13:53	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		119		70-135	%	02.21.18 13:53
o-Terphenyl	106		114		70-135	%	02.21.18 13:53

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 576847

COG Operating LLC

MC Southeast Battery

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3041964 Matrix: Solid Date Prep: 02.20.18
MB Sample Id: 7639673-1-BLK LCS Sample Id: 7639673-1-BKS LCSD Sample Id: 7639673-1-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	0.0994	0.0823	83	0.0935	94	70-130	13	35	mg/kg	02.21.18 20:15	
Toluene	<0.00199	0.0994	0.0887	89	0.101	101	70-130	13	35	mg/kg	02.21.18 20:15	
Ethylbenzene	<0.00199	0.0994	0.102	103	0.117	117	71-129	14	35	mg/kg	02.21.18 20:15	
m,p-Xylenes	<0.00398	0.199	0.201	101	0.229	114	70-135	13	35	mg/kg	02.21.18 20:15	
o-Xylene	<0.00199	0.0994	0.0994	100	0.114	114	71-133	14	35	mg/kg	02.21.18 20:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		87		86		80-120	%	02.21.18 20:15
4-Bromofluorobenzene	99		108		112		80-120	%	02.21.18 20:15

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3041987 Matrix: Solid Date Prep: 02.23.18
MB Sample Id: 7639672-1-BLK LCS Sample Id: 7639672-1-BKS LCSD Sample Id: 7639672-1-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	0.0930	92	0.0843	84	70-130	10	35	mg/kg	02.23.18 07:54	
Toluene	<0.00202	0.101	0.0996	99	0.0910	91	70-130	9	35	mg/kg	02.23.18 07:54	
Ethylbenzene	<0.00202	0.101	0.114	113	0.104	104	71-129	9	35	mg/kg	02.23.18 07:54	
m,p-Xylenes	<0.00403	0.202	0.224	111	0.205	102	70-135	9	35	mg/kg	02.23.18 07:54	
o-Xylene	<0.00202	0.101	0.110	109	0.101	101	71-133	9	35	mg/kg	02.23.18 07:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		81		82		80-120	%	02.23.18 07:54
4-Bromofluorobenzene	107		111		117		80-120	%	02.23.18 07:54

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3041964 Matrix: Soil Date Prep: 02.20.18
Parent Sample Id: 576848-003 MS Sample Id: 576848-003 S MSD Sample Id: 576848-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0730	72	0.0738	74	70-130	1	35	mg/kg	02.21.18 20:53	
Toluene	0.00225	0.101	0.0781	75	0.0777	76	70-130	1	35	mg/kg	02.21.18 20:53	
Ethylbenzene	<0.00202	0.101	0.0875	87	0.0848	85	71-129	3	35	mg/kg	02.21.18 20:53	
m,p-Xylenes	<0.00403	0.202	0.171	85	0.166	83	70-135	3	35	mg/kg	02.21.18 20:53	
o-Xylene	<0.00202	0.101	0.0859	85	0.0823	83	71-133	4	35	mg/kg	02.21.18 20:53	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		87		80-120	%	02.21.18 20:53
4-Bromofluorobenzene	106		105		80-120	%	02.21.18 20:53

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
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

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

QC Summary 576847

COG Operating LLC

MC Southeast Battery

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3041987 Matrix: Soil Date Prep: 02.23.18

Parent Sample Id: 576848-010 MS Sample Id: 576848-010 S MSD Sample Id: 576848-010 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	0.0771	77	0.0724	73	70-130	6	35	mg/kg	02.23.18 08:43	
Toluene	<0.00201	0.100	0.0818	82	0.0761	76	70-130	7	35	mg/kg	02.23.18 08:43	
Ethylbenzene	<0.00201	0.100	0.0923	92	0.0856	86	71-129	8	35	mg/kg	02.23.18 08:43	
m,p-Xylenes	<0.00402	0.201	0.182	91	0.170	85	70-135	7	35	mg/kg	02.23.18 08:43	
o-Xylene	<0.00201	0.100	0.0899	90	0.0849	85	71-133	6	35	mg/kg	02.23.18 08:43	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		82		80-120	%	02.23.18 08:43
4-Bromofluorobenzene	119		117		80-120	%	02.23.18 08:43

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

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Dallas Texas (214-902-0300)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com

Xenco Quote #

Xenco Job # 576847

Client / Reporting Information

Company Name / Branch: COG Operating LLC

Company Address: 2407 Pecos Ave. Artesia NM 88210

Email: dneel2@concho.com; slhitchcock@concho.com; cgray@concho.com; rhaskell@concho.com

Phone No: 575-746-2010

Project Contact: Dakota Neel

Samplers's Name: Dakota Neel

Project Information

Project Name/Number: MC SOUTHEAST BATTERY

Project Location:

Invoice To: COG Operating LLC, Attn: Robert Mcneill, 600 W. Illinois 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	BTEX	CHLORIDES	Field Comments
1	T1	0'	2/15/2018	9:00	S										X	X	X	
2	T1	1'	2/15/2018	9:00	S										X	X	X	
3	T1	2'	2/15/2018	9:00	S										X	X	X	
4	T2	0'	2/15/2018	9:00	S										X	X	X	
5	T2	1'	2/15/2018	9:00	S										X	X	X	
6	T2	2'	2/15/2018	9:00	S										X	X	X	
7	T3	0'	2/15/2018	9:00	S										X	X	X	
8	T3	1'	2/15/2018	9:00	S										X	X	X	
9	T3	2'	2/15/2018	9:00	S										X	X	X	
10																		

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [X] 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 Cl- if > 600 mg/kg

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		2/16/18		2 Sid Butler	12:00 2-16-18	2
2	Sid Butler	2-16-18 104				
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
4	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
			5			

2/19 9:00

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

CHAIN OF CUSTODY

Page 2 Of 2

XENCO LABORATORIES

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

www.xenco.com

Xenco Quote # | Xenco Job # 576847

Client / Reporting Information

Company Name / Branch: COG Operating LLC

Company Address: 2407 Pecos Ave. Artesia NM 88210

Email: dneel2@concho.com; shitchcock@concho.com; cgray@concho.com; rhaskell@concho.com | Phone No: 575-746-2010

Project Contact: Dakota Neel

Samplers's Name: Dakota Neel

Project Information

Project Name/Number: MC SOUTHEAST BATTERY

Project Location:

Invoice To: COG Operating LLC, Attn: Robert Mcneill, 600 W. Illinois Ave., Midland TX, 79701

PO Number:

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S = Soil/Sed/Solid
GW =Ground Water
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SW = Surface water
SL = Sludge
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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	BTEX	CHLORIDES	Field Comments
1	T4	0'	2/15/2018	9:00	S										X	X	X	
2	T4	1'	2/15/2018	9:00	S										X	X	X	
3	T4	2'	2/15/2018	9:00	S										X	X	X	
4	T5	0'	2/15/2018	9:00	S										X	X	X	
5	T5	1'	2/15/2018	9:00	S										X	X	X	
6	T5	2'	2/15/2018	9:00	S										X	X	X	
7																		
8																		
9																		
10																		

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

Turnaround Time (Business days)

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

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

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

Notes:

stop Cl⁻ if ≥ 600 mg/kg

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		2/16/18 10:00a	Sid Butler 2-16-18 10A	Sid Butler	2-16-18 12N	2/19 9:00
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: 02/19/2018 09:08:34 AM

Work Order #: 576847

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)?	3
#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: Katie Lowe Date: 02/19/2018

Checklist reviewed by: Kelsey Brooks Date: 02/19/2018

CARDINAL Laboratories

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

March 28, 2018

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: MC SOUTHEAST BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 03/21/18 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 SOUTHEAST BATTERY Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 28-Mar-18 14:17

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH -4 3'	H800812-01	Soil	20-Mar-18 00:00	21-Mar-18 12:00
AH -4 4'	H800812-02	Soil	20-Mar-18 00:00	21-Mar-18 12:00
AH -4 5'	H800812-03	Soil	20-Mar-18 00:00	21-Mar-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 SOUTHEAST BATTERY Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 28-Mar-18 14:17

AH -4 3'

H800812-01 (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	8032201	MS	22-Mar-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*90.7 %*	*72-148*		*8032201*	MS	*22-Mar-18*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
DRO >C10-C28*	**14.7**		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
Surrogate: 1-Chlorooctane			*71.9 %*	*41-142*		*8032102*	MS	*22-Mar-18*	*8015B*	
Surrogate: 1-Chlorooctadecane			*74.2 %*	*37.6-147*		*8032102*	MS	*22-Mar-18*	*8015B*	
Green Analytical Laboratories										
Soluble (DI Water Extraction)										
Chloride	**175**		10.0	mg/kg wet	10	B803170	JDA	23-Mar-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 SOUTHEAST BATTERY Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 28-Mar-18 14:17

AH -4 4'

H800812-02 (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	8032201	MS	22-Mar-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*93.5 %*	*72-148*		*8032201*	MS	*22-Mar-18*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
DRO >C10-C28*	**374**		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
EXT DRO >C28-C36	**73.1**		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
Surrogate: 1-Chlorooctane			*84.9 %*	*41-142*		*8032102*	MS	*22-Mar-18*	*8015B*	
Surrogate: 1-Chlorooctadecane			*111 %*	*37.6-147*		*8032102*	MS	*22-Mar-18*	*8015B*	
Green Analytical Laboratories										
Soluble (DI Water Extraction)										
Chloride	**1600**		50.0	mg/kg wet	50	B803170	JDA	23-Mar-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 SOUTHEAST BATTERY Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 28-Mar-18 14:17

AH -4 5'

H800812-03 (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	8032201	MS	22-Mar-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8032201	MS	22-Mar-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*94.2 %*	*72-148*		*8032201*	MS	*22-Mar-18*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8032102	MS	22-Mar-18	8015B	
Surrogate: 1-Chlorooctane			*79.7 %*	*41-142*		*8032102*	MS	*22-Mar-18*	*8015B*	
Surrogate: 1-Chlorooctadecane			*81.5 %*	*37.6-147*		*8032102*	MS	*22-Mar-18*	*8015B*	
Green Analytical Laboratories										
Soluble (DI Water Extraction)										
Chloride	**13.4**		10.0	mg/kg wet	10	B803170	JDA	23-Mar-18	EPA300.0	

Cardinal Laboratories

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Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC SOUTHEAST BATTERY Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 28-Mar-18 14:17

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 8032201 - Volatiles										
Blank (8032201-BLK1)				Prepared & Analyzed: 22-Mar-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)	*0.0928*		mg/kg	*0.100*		*92.8*	*72-148*			
LCS (8032201-BS1)				Prepared & Analyzed: 22-Mar-18						
Benzene	1.94	0.050	mg/kg	2.00		97.1	79.5-124			
Toluene	2.14	0.050	mg/kg	2.00		107	75.5-127			
Ethylbenzene	2.15	0.050	mg/kg	2.00		108	77.7-125			
Total Xylenes	6.63	0.150	mg/kg	6.00		111	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	*0.0914*		mg/kg	*0.100*		*91.4*	*72-148*			
LCS Dup (8032201-BSD1)				Prepared & Analyzed: 22-Mar-18						
Benzene	1.93	0.050	mg/kg	2.00		96.3	79.5-124	0.862	6.5	
Toluene	2.10	0.050	mg/kg	2.00		105	75.5-127	1.53	7.02	
Ethylbenzene	2.16	0.050	mg/kg	2.00		108	77.7-125	0.164	7.83	
Total Xylenes	6.65	0.150	mg/kg	6.00		111	70.9-124	0.207	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	*0.0922*		mg/kg	*0.100*		*92.2*	*72-148*			

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CARDINAL Laboratories

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Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: MC SOUTHEAST BATTERY Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 28-Mar-18 14:17

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 8032102 - General Prep - Organics										
Blank (8032102-BLK1)				Prepared: 21-Mar-18 Analyzed: 22-Mar-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	*49.5*		mg/kg	*50.0*		*99.1*	*41-142*			
Surrogate: 1-Chlorooctadecane	*51.1*		mg/kg	*50.0*		*102*	*37.6-147*			
LCS (8032102-BS1)				Prepared: 21-Mar-18 Analyzed: 22-Mar-18						
GRO C6-C10	197	10.0	mg/kg	200		98.4	76.5-133			
DRO >C10-C28	208	10.0	mg/kg	200		104	72.9-138			
Total TPH C6-C28	405	10.0	mg/kg	400		101	78-132			
Surrogate: 1-Chlorooctane	*51.1*		mg/kg	*50.0*		*102*	*41-142*			
Surrogate: 1-Chlorooctadecane	*53.4*		mg/kg	*50.0*		*107*	*37.6-147*			
LCS Dup (8032102-BSD1)				Prepared: 21-Mar-18 Analyzed: 22-Mar-18						
GRO C6-C10	195	10.0	mg/kg	200		97.3	76.5-133	1.10	20.6	
DRO >C10-C28	210	10.0	mg/kg	200		105	72.9-138	0.803	20.6	
Total TPH C6-C28	404	10.0	mg/kg	400		101	78-132	0.117	18	
Surrogate: 1-Chlorooctane	*50.3*		mg/kg	*50.0*		*101*	*41-142*			
Surrogate: 1-Chlorooctadecane	*52.7*		mg/kg	*50.0*		*105*	*37.6-147*			

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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 SOUTHEAST BATTERY Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 28-Mar-18 14:17

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 B803170 - General Prep - Wet Chem										
Blank (B803170-BLK1)				Prepared & Analyzed: 23-Mar-18						
Chloride	ND	10.0	mg/kg wet							
LCS (B803170-BS1)				Prepared & Analyzed: 23-Mar-18						
Chloride	234	10.0	mg/kg wet	250		93.6	85-115			
LCS Dup (B803170-BSD1)				Prepared & Analyzed: 23-Mar-18						
Chloride	236	10.0	mg/kg wet	250		94.6	85-115	1.06	20	

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Notes and Definitions

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

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Concho Resources	BILL TO
Project Manager: Sheldon Hitchcock	P.O. #:
Address: 2407 Pecos Avenue	Company: COG
City: Artesia State: NM Zip: 88210	Attn: Robert McNeill
Phone #: 575-703-6475 Fax #:	Address:
Project #: Project Owner: Concho	City:
Project Name: MC Southeast Battery	State: Zip:
Project Location: Lea County	Phone #:
Sampler Name: Christopher Guy	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH EXTENDED	BTEX	CHLORIDES 300
H600812																	
1	AH-4 3'	G	1			✓					✓		3/20/18		✓	✓	✓
2	AH-4 4'	G	1			✓					✓				✓	✓	✓
3	AH 4 5'	G	1			✓					✓				✓	✓	✓

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Relinquished By: Christopher Guy	Date: 3-21-18 Time: 12:00	Received By: Tamara Oldaker	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
			REMARKS:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	2.9°C Corrected 2.85°C	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) TO-#75

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