SITE INFORMATION

Report Type: Work Plan 1RP-4781

General Site Information:						
Site:	**Cuatro Hijos Fee #4H**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit M**	**Sec. 17**	**T 19S**	**R 35E**		
Lease Number:	**API No. 30-025-41752**					
County:	**Lea County**					
GPS:	**32.6538544° N**			**103.4865189° W**		
Surface Owner:	Private					
Mineral Owner:						
Directions:	From intersection of CR 27-A & NM 62/180, travel east on NM 62 for 2.40 mi, turn north onto lease road for 0.10 mi until lease road turns west and continue for 0.40 miles to location on north side of the lease road					

Release Data:	
Date Released:	8/3/2017
Type Release:	Produced Water
Source of Contamination:	Flowline
Fluid Released:	5 bbls
Fluids Recovered:	1 bbl

Official Communication:			
Name:	Robert McNeil		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	***10***	*80'*
>100 ft.	0	
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	***0***	*0*
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	***0***	*0*
Total Ranking Score:	***10***	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	1,000

TETRA TECH

APPROVED
By Olivia Yu at 3:13 pm, Jan 02, 2018

NMOCD approves of the delineation completed for 1RP-4781 and proposed remediation with one condition: sidewall confirmation samples must demonstrate permissible levels of chlorides (600 mg/kg).

December 27, 2017

Ms. Olivia Yu
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Work Plan for the COG Operating LLC., Cuatro Hijos Fee #4H, Unit M, Section 17, Township 19 South, Range 35 East, Lea County, New Mexico. 1RP-4781.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess and evaluate a release that occurred at the Cuatro Hijos Fee #4H, Unit M, Section 17, Township 19 South, Range 35 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.6538544º, W 103.4865189º. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release occurred on August 3, 2017, and released approximately five (5) barrels of produced water due to a flowline leak. A vacuum truck was used to remove all freestanding fluids, recovering approximately one (1) barrel of produced water. The release occurred on the pad and measured an area approximately 10' x 20'. The initial C-141 Form is included in Appendix A.

Groundwater

Three water wells are listed within Section 17 on the New Mexico Office of the State Engineer's database, with depths to water of 30', 80', and 90' below surface. The nearest well is approximately 0.20 miles northeast of the release area, with a reported depth to water of 80' below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site

Tetra Tech
4000 North Big Spring, Suite 401, Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Soil Assessment and Analytical Results

Initial Assessment

On August 23, 2017, COG personnel were onsite to evaluate and sample the release area. One (1) sample trench (T-1) was installed in the release area to a total depth of 14' below surface. Additionally, three (3) trenches (North, South, and West) were installed to total depths of 1.0' below surface outside the spill footprint for horizontal extents. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The trench locations are shown on Figure 3.

Referring to Table 1, all of the samples analyzed showed benzene and total BTEX concentrations below the laboratory reporting limit. Additionally, all of the samples, with the exception of the surface sample at trench (West), showed TPH concentrations below the laboratory reporting limit. The sample at trench (West) showed a concentration of 25.0 mg/kg at surface, which declined with depth to below the laboratory reporting limits at 1.0' below surface.

However, the area of trench (T-1) showed a chloride concentration of 10,800 mg/kg at surface. The chloride concentrations declined with depth and showed a bottom trench concentration of 4,930 mg/kg at 14.0' below surface, and the impact was not vertically defined. The samples collected at trenches (North, South, and West) showed insignificant chlorides with concentrations ranging from <4.95 mg/kg to 48.2 mg/kg.

Additional Sampling

Based on the laboratory results, Tetra Tech personnel returned to the site on October 11, 2017, to install one (1) borehole (BH-1) in the area of trench (T-1) in order to vertically define the chloride impact. The samples were analyzed for chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The borehole location is shown on Figure 3.

Referring to Table 1, the area of borehole (BH-1) showed a chloride high of 7,360 mg/kg at 2'-3' below surface. The chlorides then declined with depth to 567 mg/kg at 19'-20' below surface. The concentrations declined further with depth and showed a bottom borehole concentration of 37.0 mg/kg at 54'-55' below surface.

TETRA TECH

Work Plan

Based on the laboratory results, COG proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of borehole (BH-1) will be excavated to approximately 4.0' below surface and capped with a 20 mil liner to prevent vertical migration of the deeper impact. All of the excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

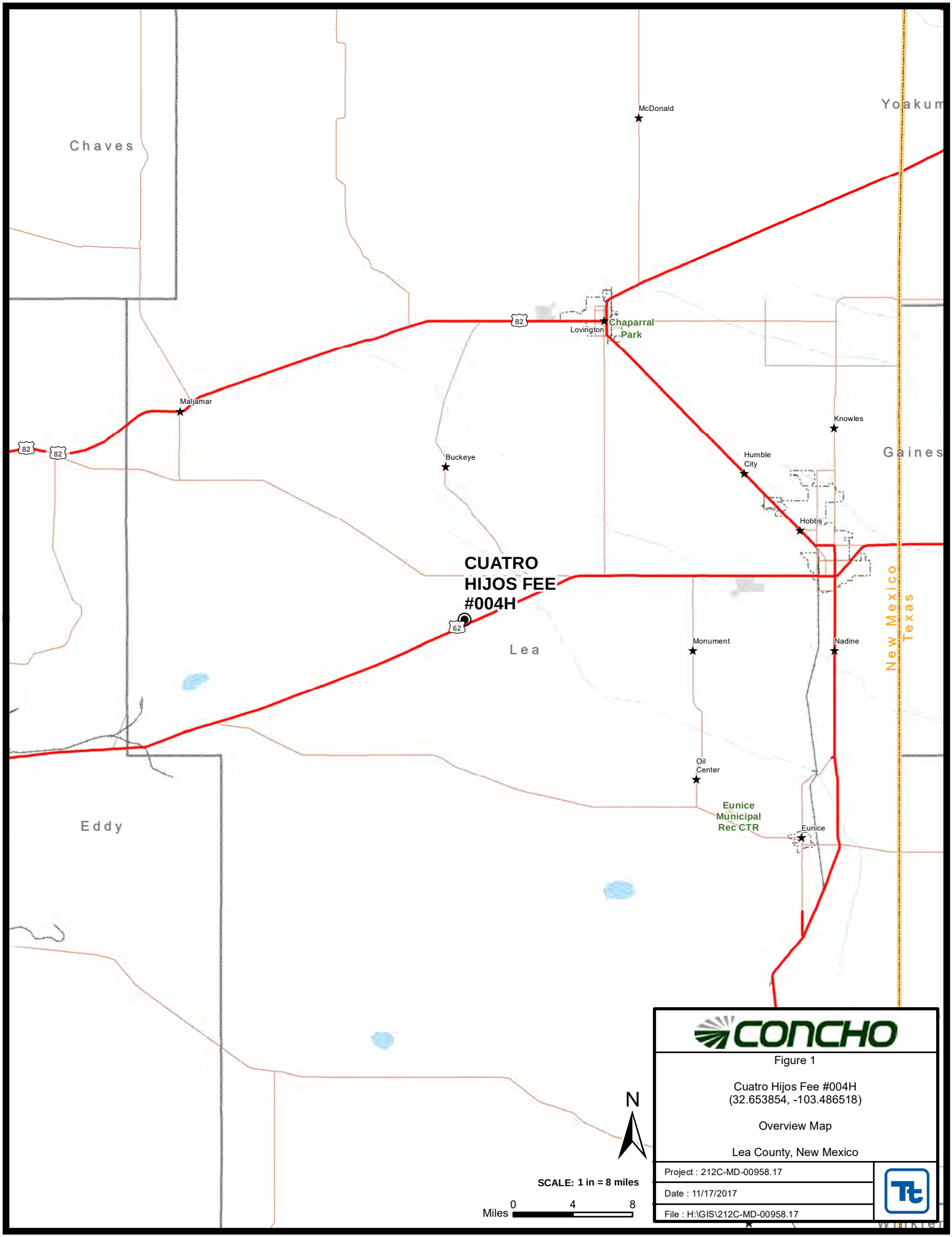
Respectfully submitted,
TETRA TECH

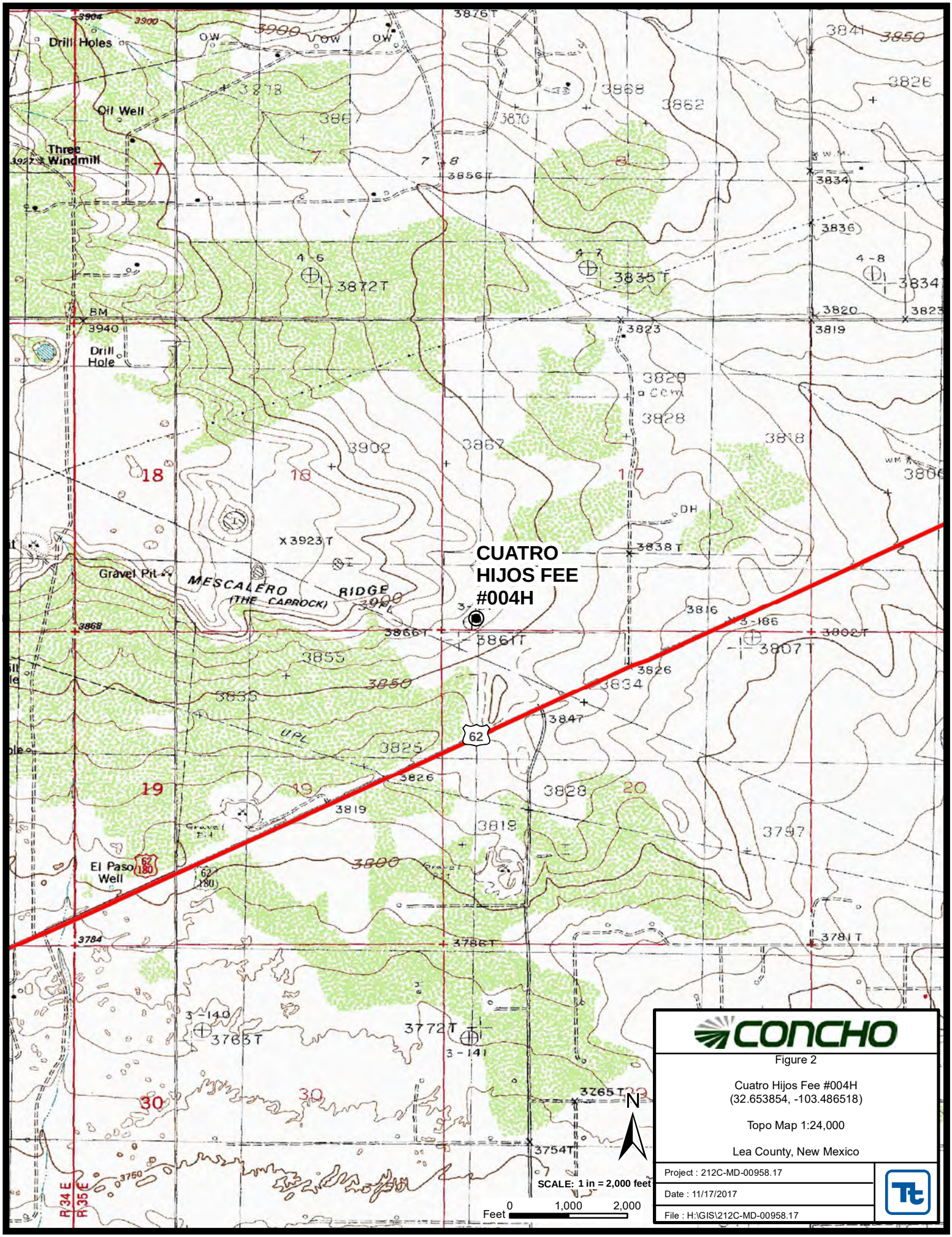
Clair Gonzales,
Geologist

Ike Tavarez,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG
Rebecca Haskell – COG

Figures


Chaves
McDonald
Yoakum
82
Lovington
Chaparral Park
Maljamar
82
82
Buckeye
Knowles
Humble City
Gaines
Hobbs
CUATRO HIJOS FEE #004H
62
Lea
Monument
Nadine
New Mexico
Texas
Oil Center
Eunice Municipal Rec CTR
Eunice
Eddy
N
SCALE: 1 in = 8 miles
Miles 0 4 8
CONCHO
Figure 1
Cuatro Hijos Fee #004H
(32.653854, -103.486518)
Overview Map
Lea County, New Mexico
Project : 212C-MD-00958.17
Date : 11/17/2017
File : H:\GIS\212C-MD-00958.17
Mapped By: Isabel Marmolejo



CONCHO

Figure 2

Cuatro Hijos Fee #004H
(32.653854, -103.486518)

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00958.17

Date : 11/17/2017

File : H:\GIS\212C-MD-00958.17

Mapped By: Isabel Marmolejo

EXPLANATION

- BORE HOLE SAMPLE LOCATIONS
- SAMPLE LOCATIONS
- SPILL AREA

CONCHO

Figure 3

Cuatro Hijos Fee #004H
(32.653854, -103.486518)

Spill Assessment Map

Lea County, New Mexico

Project : 212C-MD-00958.17	
Date : 11/17/2017	
File : H:\GIS\212C-MD-00958.17	

Mapped By: Isabel Marmolejo

EXPLANATION

- BORE HOLE SAMPLE LOCATIONS
- SAMPLE LOCATIONS
- PROPOSED LINER
- PROPOSED EXCAVATION AREA

N

SCALE: 1 IN = 50 FEET

Feet 0 25 50

CONCHO

Figure 4

Cuatro Hijos Fee #004H
(32.653854, -103.486518)

Proposed Excavation Area & Depth Map

Lea County, New Mexico

Project : 212C-MD-00958.17	
Date : 11/17/2017	
File : H:\GIS\212C-MD-00958.17	

Mapped By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC.
Cuatro Hijos Fee #4H
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
T-1	8/23/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	**10,800**
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**7,810**
	"	2	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	**5,780**
	"	3	X		-	-	-	-	-	-	-	-	-	**5,790**
	"	4	X		-	-	-	-	-	-	-	-	-	**2,340**
	"	6	X		-	-	-	-	-	-	-	-	-	**4,300**
	"	8	X		-	-	-	-	-	-	-	-	-	**2,500**
	"	10	X		-	-	-	-	-	-	-	-	-	**4,910**
	"	12	X		-	-	-	-	-	-	-	-	-	**3,600**
	"	14	X		<15.0	<15.0	<15.0	<15.0	<0.00353	<0.00353	<0.00353	<0.00353	<0.00353	**4,930**
BH-1	10/11/2017	0-1	X		-	-	-	-	-	-	-	-	-	**4,970**
	"	2-3	X		-	-	-	-	-	-	-	-	-	**7,360**
	"	4-5	X		-	-	-	-	-	-	-	-	-	**5,600**
	"	6-7	X		-	-	-	-	-	-	-	-	-	**6,050**
	"	9-10	X		-	-	-	-	-	-	-	-	-	**5,100**
	"	14-15	X		-	-	-	-	-	-	-	-	-	**2,480**
	"	19-20	X		-	-	-	-	-	-	-	-	-	567
	"	24-25	X		-	-	-	-	-	-	-	-	-	105
	"	29-30	X		-	-	-	-	-	-	-	-	-	140
	"	34-35	X		-	-	-	-	-	-	-	-	-	205
	"	39-40	X		-	-	-	-	-	-	-	-	-	230
	"	44-45	X		-	-	-	-	-	-	-	-	-	246
	"	49-50	X		-	-	-	-	-	-	-	-	-	96.0
	"	54-55	X		-	-	-	-	-	-	-	-	-	37.0
North	8/23/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	32.6
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	48.2
South	8/23/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	26.2
	"	1	X		<14.9	<14.9	<14.9	<14.9	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	22.8
West	8/23/2017	Surface	X		<14.9	25.0	<14.9	25.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<4.95
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	24.2

(-) Not Analyzed

Proposed Excavation Depths

Proposed Liner Depths

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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: Cuatro Hijos Fee #004H		Facility Type:	Flowline
Surface Owner: Private	Mineral Owner: Private		API No. 30-025-41752

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	17	19S	35E	190	South	500	West	Lea

Latitude 32.6538544 **Longitude** -103.4865189

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 5 bbl.	Volume Recovered: 1 bbl.
Source of Release: Flowline	Date and Hour of Occurrence: August 3, 2017 2:20 pm	Date and Hour of Discovery: August 3, 2017 2:20 pm
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 11:21 am, Aug 08, 2017

Describe Cause of Problem and Remedial Action Taken.*

The release was due to a leak on a Vic clamp downstream of transfer pump. The line was repaired.

Describe Area Affected and Cleanup Action Taken.*

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

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

Signature: Rebecca Haskell		OIL CONSERVATION DIVISION	
Printed Name:	Rebecca Haskell	Approved by Environmental Specialist:	
Title:	Senior HSE Coordinator	Approval Date: 8/8/2017	Expiration Date:
E-mail Address:	rhaskell@concho.com	Conditions of Approval: see attached directive	Attached ☑
Date: August 4, 2017	Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

1RP-4781

nOY1722040965

pOY1722041244

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Cuatro Hijos Fee #4H
Lea County, New Mexico

18 South 34 East

6 130	5 105	4	3 87	2 102	1 107
7 83	8 148	9	10 148	11 110	12 115 92
18 125	17	16 108	15 114 110	14 103	13 96
19 105	20 125	21	22	23	24
30	29	28	27 112	26	25 117
31	32	33	34	35 118	36

18 South 35 East

6 89	5 69	4 58	3 62	2 55 51	1
7 85	8	9 72	10 49	11 59 48	12
18 90	17 90 124	16 75	15	14 90	13 135
19 74 70	20 85 50	21	22 70	23	24
30	29 95	28	27 68	26 60	25
31	32 58	33 80	34	35 58	36

18 South 36 East

6 45	5 35	4 65	3	2 60	1 50
7 65	8	9 85	10	11 38	12 40
18 25	17	16	15 53	14 55	13
19	20 59	21 58	22 60	23 39	24 28
30	29 55	28 45	27 55	26 55	25 62
31	32	33	34 70	35	36

19 South 34 East

6 244	5	4	3	2 100	1
7	8	9 29 28.6	10	11 123	12 60
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25 28
31 65	32	33	34	35	36

19 South 35 East

6 61 58	5 63	4 70	3	2	1 63
7 51	8 18	9 20	10 53	11	12
18 60	17 80 50	16	15 26	14 27	13 27
19	20	21	22 27	23	24 20
30	29	28	27	26	25
31	32	33	34	35	36

19 South 36 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

20 South 34 East

6	5	4 125	3	2	1
7	8	9	10	11	12
18	17 128 140	16	15	14 150	13
19	20	21	22	23	24 270
30	29	28	27	26	25
31	32	33	34 82	35	36

20 South 35 East

6 56 64	5 64	4	3	2	1
7	8	9	10	11	12 49
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31 65	32	33 89	34	35	36

20 South 36 East

6 32	5 28	4	3	2 92	1 40
7	8 33	9 38	10	11 32	12 29
18 34	17	16	15	14 45	13
19	20	21	22	23	24
30	29	28	27	26 106 170	25
31	32 170	33	34	35 122	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

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

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Depth Well	Depth Water	Water Column
L 08234		L	LE	2	2	3	17	19S	35E	642487	3614566*	120	90	30
L 08234 S2		L	LE			3	17	19S	35E	642192	3614259*	126	80	46
L 09569		L	LE		4	3	17	19S	35E	642394	3614063*	80	30	50

Average Depth to Water: **66 feet**

Minimum Depth: **30 feet**

Maximum Depth: **90 feet**

Record Count: 3

PLSS Search:

Section(s): 17 **Township:** 19S **Range:** 35E

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

Appendix C

Certificate of Analysis Summary 561419

COG Operating LLC, Artesia, NM

Project Name: Cuatro Hijos Fee #4

Project Id:

Contact: Aaron Lieb

Project Location: Cuatro Hijos Fee #4

Date Received in Lab: Sat Aug-26-17 02:00 pm

Report Date: 11-SEP-17

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	561419-001		561419-002		561419-003		561419-004		561419-005		561419-006	
	Field Id:	T1		T1		T1		T1		T1		T1	
	Depth:			1- ft		2- ft		3- ft		4- ft		6- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-23-17 09:00		Aug-23-17 09:00		Aug-23-17 09:00		Aug-23-17 09:00		Aug-23-17 09:00		Aug-23-17 09:00	
BTEX by EPA 8021B	***Extracted:***	Aug-31-17 16:40		Aug-31-17 16:40		Aug-31-17 16:40							
	Analyzed:	Sep-01-17 05:33		Sep-01-17 05:14		Sep-01-17 05:52							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Benzene		<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198						
Toluene		<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198						
Ethylbenzene		<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198						
m,p-Xylenes		<0.00402	0.00402	<0.00399	0.00399	<0.00396	0.00396						
o-Xylene		<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198						
Total Xylenes		<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198						
Total BTEX		<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198						
Inorganic Anions by EPA 300/300.1	***Extracted:***	Sep-05-17 14:35		Sep-05-17 14:35		Sep-05-17 14:35		Sep-05-17 14:35		Sep-05-17 14:35		Sep-06-17 11:05	
	Analyzed:	Sep-05-17 20:47		Sep-05-17 20:57		Sep-05-17 21:07		Sep-05-17 21:18		Sep-05-17 21:28		Sep-06-17 13:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		10800	49.9	7810	50.0	5780	24.9	5790	49.4	2340	24.7	4300	25.0
TPH By SW8015 Mod	***Extracted:***	Aug-29-17 16:00		Aug-29-17 16:00		Aug-29-17 16:00							
	Analyzed:	Aug-30-17 02:17		Aug-30-17 02:38		Aug-30-17 02:59							
	Units/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						
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0						
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<15.0	15.0						
Total TPH		<15.0	15.0	<15.0	15.0	<15.0	15.0						

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 561419

COG Operating LLC, Artesia, NM

Project Name: Cuatro Hijos Fee #4

Project Id:
Contact: Aaron Lieb
Project Location: Cuatro Hijos Fee #4

Date Received in Lab: Sat Aug-26-17 02:00 pm
Report Date: 11-SEP-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	561419-007		561419-008		561419-009		561419-010					
	Field Id:	T1		T1		T1		T1					
	Depth:	8- ft		10- ft		12- ft		14- ft					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Aug-23-17 09:00		Aug-23-17 09:00		Aug-23-17 09:00		Aug-23-17 09:00					
BTEX by EPA 8021B	***Extracted:***							Sep-05-17 08:30					
	Analyzed:							Sep-05-17 10:12					
	Units/RL:							mg/kg	RL				
Benzene								<0.00353	0.00353				
Toluene								<0.00353	0.00353				
Ethylbenzene								<0.00353	0.00353				
m,p-Xylenes								<0.00707	0.00707				
o-Xylene								<0.00353	0.00353				
Total Xylenes								<0.00353	0.00353				
Total BTEX								<0.00353	0.00353				
Inorganic Anions by EPA 300/300.1	***Extracted:***	Sep-06-17 11:05		Sep-06-17 11:05		Sep-06-17 11:05		Sep-06-17 11:05					
	Analyzed:	Sep-06-17 13:38		Sep-06-17 13:46		Sep-06-17 13:53		Sep-06-17 14:01					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		2500	25.0	4910	25.0	3600	24.5	4930	24.5				
TPH By SW8015 Mod	***Extracted:***							Aug-29-17 16:00					
	Analyzed:							Aug-30-17 03:21					
	Units/RL:							mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)								<15.0	15.0				
Diesel Range Organics (DRO)								<15.0	15.0				
Oil Range Hydrocarbons (ORO)								<15.0	15.0				
Total TPH								<15.0	15.0				

Kelsey Brooks
Project Manager

Analytical Report 561419

for

COG Operating LLC

Project Manager: Aaron Lieb

Cuatro Hijos Fee #4

11-SEP-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

11-SEP-17

Project Manager: **Aaron Lieb**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **561419**
Cuatro Hijos Fee #4
Project Address: Cuatro Hijos Fee #4

Aaron Lieb:

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) 561419. 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. 561419 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 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1	S	08-23-17 09:00		561419-001
T1	S	08-23-17 09:00	1 ft	561419-002
T1	S	08-23-17 09:00	2 ft	561419-003
T1	S	08-23-17 09:00	3 ft	561419-004
T1	S	08-23-17 09:00	4 ft	561419-005
T1	S	08-23-17 09:00	6 ft	561419-006
T1	S	08-23-17 09:00	8 ft	561419-007
T1	S	08-23-17 09:00	10 ft	561419-008
T1	S	08-23-17 09:00	12 ft	561419-009
T1	S	08-23-17 09:00	14 ft	561419-010

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3026428 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3026700 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-001	Date Collected:	08.23.17 09.00		

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10800**	49.9	mg/kg	09.05.17 20.47		10

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 02.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 02.17	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 02.17	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 02.17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	08.30.17 02.17	
o-Terphenyl	84-15-1	90	%	70-135	08.30.17 02.17	

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-001	Date Collected:	08.23.17 09.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.01.17 05.33	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.01.17 05.33	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.01.17 05.33	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.01.17 05.33	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.01.17 05.33	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.01.17 05.33	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.01.17 05.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	101	%	80-120	09.01.17 05.33	
1,4-Difluorobenzene	540-36-3	92	%	80-120	09.01.17 05.33	

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-002	Date Collected:	08.23.17 09.00	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7810**	50.0	mg/kg	09.05.17 20.57		10

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 02.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 02.38	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 02.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 02.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	08.30.17 02.38	
o-Terphenyl	84-15-1	102	%	70-135	08.30.17 02.38	

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-002	Date Collected:	08.23.17 09.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.01.17 05.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.01.17 05.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.01.17 05.14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.01.17 05.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.01.17 05.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.01.17 05.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.01.17 05.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	90	%	80-120	09.01.17 05.14	
4-Bromofluorobenzene	460-00-4	93	%	80-120	09.01.17 05.14	

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-003	Date Collected:	08.23.17 09.00	Sample Depth:	2 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5780**	24.9	mg/kg	09.05.17 21.07		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 02.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 02.59	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 02.59	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 02.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	08.30.17 02.59	
o-Terphenyl	84-15-1	90	%	70-135	08.30.17 02.59	

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-003	Date Collected:	08.23.17 09.00	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.01.17 05.52	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	09.01.17 05.52	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	09.01.17 05.52	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	09.01.17 05.52	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	09.01.17 05.52	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	09.01.17 05.52	U	1
Total BTEX		<0.00198	0.00198	mg/kg	09.01.17 05.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	91	%	80-120	09.01.17 05.52	
4-Bromofluorobenzene	460-00-4	97	%	80-120	09.01.17 05.52	

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-004	Date Collected:	08.23.17 09.00	Sample Depth:	3 ft
Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5790**	49.4	mg/kg	09.05.17 21.18		10

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-005	Date Collected:	08.23.17 09.00	Sample Depth:	4 ft
Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2340**	24.7	mg/kg	09.05.17 21.28		5

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-006	Date Collected:	08.23.17 09.00	Sample Depth:	6 ft
Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.06.17 11.05	Basis:	Wet Weight
Seq Number:	3027144				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4300**	25.0	mg/kg	09.06.17 13.30		5

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-007	Date Collected:	08.23.17 09.00	Sample Depth:	8 ft
Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.06.17 11.05	Basis:	Wet Weight
Seq Number:	3027144				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2500**	25.0	mg/kg	09.06.17 13.38		5

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-008	Date Collected:	08.23.17 09.00	Sample Depth:	10 ft
Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.06.17 11.05	Basis:	Wet Weight
Seq Number:	3027144				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4910**	25.0	mg/kg	09.06.17 13.46		5

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-009	Date Collected:	08.23.17 09.00	Sample Depth:	12 ft
Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.06.17 11.05	Basis:	Wet Weight
Seq Number:	3027144				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3600**	24.5	mg/kg	09.06.17 13.53		5

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-010	Date Collected:	08.23.17 09.00	Sample Depth:	14 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.06.17 11.05	Basis:	Wet Weight
Seq Number:	3027144				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4930**	24.5	mg/kg	09.06.17 14.01		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 03.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 03.21	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 03.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 03.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	08.30.17 03.21	
o-Terphenyl	84-15-1	119	%	70-135	08.30.17 03.21	

Certificate of Analytical Results 561419

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4

Sample Id:	**T1**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561419-010	Date Collected:	08.23.17 09.00	Sample Depth:	14 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	09.05.17 08.30	Basis:	Wet Weight
Seq Number:	3026700				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00353	0.00353	mg/kg	09.05.17 10.12	U	1
Toluene	108-88-3	<0.00353	0.00353	mg/kg	09.05.17 10.12	U	1
Ethylbenzene	100-41-4	<0.00353	0.00353	mg/kg	09.05.17 10.12	U	1
m,p-Xylenes	179601-23-1	<0.00707	0.00707	mg/kg	09.05.17 10.12	U	1
o-Xylene	95-47-6	<0.00353	0.00353	mg/kg	09.05.17 10.12	U	1
Total Xylenes	1330-20-7	<0.00353	0.00353	mg/kg	09.05.17 10.12	U	1
Total BTEX		<0.00353	0.00353	mg/kg	09.05.17 10.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	94	%	80-120	09.05.17 10.12	
4-Bromofluorobenzene	460-00-4	99	%	80-120	09.05.17 10.12	

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

QC Summary 561419

COG Operating LLC

Cuatro Hijos Fee #4

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3026758 Matrix: Solid Date Prep: 09.05.17
MB Sample Id: 730381-1-BLK LCS Sample Id: 730381-1-BKS LCSD Sample Id: 730381-1-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	252	101	253	101	90-110	0	20	mg/kg	09.05.17 16:49	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3027144 Matrix: Solid Date Prep: 09.06.17
MB Sample Id: 730453-1-BLK LCS Sample Id: 730453-1-BKS LCSD Sample Id: 730453-1-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	264	106	264	106	90-110	0	20	mg/kg	09.06.17 10:18	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3026758 Matrix: Soil Date Prep: 09.05.17
Parent Sample Id: 561420-002 MS Sample Id: 561420-002 S MSD Sample Id: 561420-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	48.2	247	290	98	290	98	90-110	0	20	mg/kg	09.05.17 19:45	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3026758 Matrix: Soil Date Prep: 09.05.17
Parent Sample Id: 561471-001 MS Sample Id: 561471-001 S MSD Sample Id: 561471-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	93.0	247	339	100	340	100	90-110	0	20	mg/kg	09.05.17 17:20	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3027144 Matrix: Soil Date Prep: 09.06.17
Parent Sample Id: 561430-002 MS Sample Id: 561430-002 S MSD Sample Id: 561430-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	240	249	489	100	499	104	90-110	2	20	mg/kg	09.06.17 12:29	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3027144 Matrix: Soil Date Prep: 09.06.17
Parent Sample Id: 561470-001 MS Sample Id: 561470-001 S MSD Sample Id: 561470-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	30.9	100	140	109	135	104	90-110	4	20	mg/kg	09.06.17 10:41	

QC Summary 561419

COG Operating LLC

Cuatro Hijos Fee #4

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3026605 Matrix: Solid Date Prep: 08.29.17
MB Sample Id: 730143-1-BLK LCS Sample Id: 730143-1-BKS LCSD Sample Id: 730143-1-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	904	90	851	85	70-135	6	35	mg/kg	09.05.17 09:32	
Diesel Range Organics (DRO)	<15.0	1000	1140	114	1030	103	70-135	10	35	mg/kg	09.05.17 09:32	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		120		97		70-135	%	09.05.17 09:32
o-Terphenyl	109		108		100		70-135	%	09.05.17 09:32

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3026605 Matrix: Soil Date Prep: 08.29.17
Parent Sample Id: 561417-006 MS Sample Id: 561417-006 S MSD Sample Id: 561417-006 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	999	889	89	886	89	70-135	0	35	mg/kg	09.05.17 09:32	
Diesel Range Organics (DRO)	<15.0	999	1100	110	1100	110	70-135	0	35	mg/kg	09.05.17 09:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		117		70-135	%	09.05.17 09:32
o-Terphenyl	103		107		70-135	%	09.05.17 09:32

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3026428 Matrix: Solid Date Prep: 08.31.17
MB Sample Id: 730213-1-BLK LCS Sample Id: 730213-1-BKS LCSD Sample Id: 730213-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.115	115	0.110	110	70-130	4	35	mg/kg	09.01.17 02:04	
Toluene	<0.00201	0.100	0.115	115	0.108	108	70-130	6	35	mg/kg	09.01.17 02:04	
Ethylbenzene	<0.00201	0.100	0.117	117	0.110	110	71-129	6	35	mg/kg	09.01.17 02:04	
m,p-Xylenes	<0.00402	0.201	0.227	113	0.213	107	70-135	6	35	mg/kg	09.01.17 02:04	
o-Xylene	<0.00201	0.100	0.111	111	0.105	105	71-133	6	35	mg/kg	09.01.17 02:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	82		93		93		80-120	%	09.01.17 02:04
4-Bromofluorobenzene	86		110		104		80-120	%	09.01.17 02:04

QC Summary 561419

COG Operating LLC

Cuatro Hijos Fee #4

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3026700 Matrix: Solid Date Prep: 09.05.17
MB Sample Id: 730377-1-BLK LCS Sample Id: 730377-1-BKS LCSD Sample Id: 730377-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.104	104	0.103	103	70-130	1	35	mg/kg	09.05.17 07:57	
Toluene	<0.00200	0.100	0.102	102	0.101	101	70-130	1	35	mg/kg	09.05.17 07:57	
Ethylbenzene	<0.00200	0.100	0.101	101	0.100	100	71-129	1	35	mg/kg	09.05.17 07:57	
m,p-Xylenes	<0.00401	0.200	0.198	99	0.196	98	70-135	1	35	mg/kg	09.05.17 07:57	
o-Xylene	<0.00200	0.100	0.0952	95	0.0945	95	71-133	1	35	mg/kg	09.05.17 07:57	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		97		96		80-120	%	09.05.17 07:57
4-Bromofluorobenzene	99		105		103		80-120	%	09.05.17 07:57

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3026428 Matrix: Soil Date Prep: 08.31.17
Parent Sample Id: 561418-003 MS Sample Id: 561418-003 S MSD Sample Id: 561418-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00353	0.177	0.0453	26	0.0419	24	70-130	8	35	mg/kg	09.01.17 02:42	X
Toluene	<0.00353	0.177	0.0705	40	0.0647	37	70-130	9	35	mg/kg	09.01.17 02:42	X
Ethylbenzene	<0.00353	0.177	0.101	57	0.0940	54	71-129	7	35	mg/kg	09.01.17 02:42	X
m,p-Xylenes	<0.00707	0.353	0.202	57	0.187	54	70-135	8	35	mg/kg	09.01.17 02:42	X
o-Xylene	<0.00353	0.177	0.116	66	0.109	63	71-133	6	35	mg/kg	09.01.17 02:42	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		92		80-120	%	09.01.17 02:42
4-Bromofluorobenzene	107		91		80-120	%	09.01.17 02:42

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3026700 Matrix: Soil Date Prep: 09.05.17
Parent Sample Id: 561383-008 MS Sample Id: 561383-008 S MSD Sample Id: 561383-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.103	103	0.104	104	70-130	1	35	mg/kg	09.05.17 16:23	
Toluene	<0.00200	0.0998	0.100	100	0.101	101	70-130	1	35	mg/kg	09.05.17 16:23	
Ethylbenzene	<0.00200	0.0998	0.0969	97	0.0982	98	71-129	1	35	mg/kg	09.05.17 16:23	
m,p-Xylenes	<0.00399	0.200	0.189	95	0.191	96	70-135	1	35	mg/kg	09.05.17 16:23	
o-Xylene	<0.00200	0.0998	0.0918	92	0.0932	93	71-133	2	35	mg/kg	09.05.17 16:23	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		106		80-120	%	09.05.17 16:23
4-Bromofluorobenzene	114		116		80-120	%	09.05.17 16:23

CHAIN OF CUSTODY

Page 1 Of 1

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

Xenco Quote # | Xenco Job # 561419

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Cuatro Hijos Fee #4H
Project Location: Cuatro Hijos Fee #4
Invoice To: COG Operating LLC
Attn: Robert Mcneill
600 W. Illinois
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	BTEX	Chloride	Field Comments
1	T1	SURF	8-23-17	9:00AM											X	X	X	
2	T1	1'	8-23-17	9:00AM											X	X	X	
3	T1	2'													X	X	X	
4	T1	3'															X	
5	T1	4'															X	
6	T1	6'															X	
7	T1	8'															X	
8	T1	10'															X	
9	T1	12'															X	
10	T1	14'	↓	↓											X	X	X	

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

Notes:

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		1	2		2
3	8-25-17 12:30 PM	3 Sid Butler 8-25-17 12:30	Sid Butler 8-25-17 2:45		4
5 ARCESIO	8-26-17 14:00	5	Custody Seal #	Preserved where applicable	On Ice ✓ Cooler Temp. 8.6 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 1 Of 1

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Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com

Xenco Quote # | Xenco Job # 561419

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Cuatro Hijos Fee #4H
Project Location: Cuatro Hijos Fee #4
Invoice To: COG Operating LLC, Attn: Robert Mcneill, 600 W. Illinois, 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	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Analytical Information: TPH/ EXTENDED	BTEX	Chloride	Field Comments
1	T1	surf	8-23-17	9:00AM											X	X	X	
2	T1	1'	8-23-17	9:00AM											X	X	X	
3	T1	2'													X	X	X	
4	T1	3'															X	
5	T1	4'															X	
6	T1	6'															X	
7	T1	8'															X	
8	T1	10'															X	
9	T1	12'															X	
10	T1	14'													X	X	X	

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

Temp: 2.8 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 2.6

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	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		8-25-17 12:30 PM	Sid Butler 8-25-17 12:30	Sid Butler 8-25-17 2:45		
4	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
5	ARCESIO	8-26-17 14:00				7 / 8.6

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: 08/26/2017 02:00:00 PM

Work Order #: 561419

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)?	2.6
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**No**
#21 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: Shawnee Smith Date: 08/29/2017
Shawnee Smith

Checklist reviewed by: Kelsey Brooks Date: 08/29/2017
Kelsey Brooks

Certificate of Analysis Summary 561420

COG Operating LLC, Artesia, NM

Project Name: Cuatro Hijos Fee #4H

Project Id:

Contact: Aaron Lieb

Project Location: Cuatro Hijos Fee #4

Date Received in Lab: Sat Aug-26-17 02:00 pm

Report Date: 11-SEP-17

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	561420-001		561420-002		561420-003		561420-004		561420-005		561420-006	
	Field Id:	North		North		South		South		West		West	
	Depth:			1- ft				1- ft				1- ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-23-17 10:00		Aug-23-17 10:00		Aug-23-17 10:00		Aug-23-17 10:00		Aug-23-17 10:00		Aug-23-17 10:00	
BTEX by EPA 8021B	***Extracted:***	Aug-31-17 16:40		Aug-31-17 16:40		Aug-31-17 16:40		Aug-31-17 16:40		Aug-31-17 16:40		Aug-31-17 16:40	
	Analyzed:	Sep-01-17 06:30		Sep-01-17 06:49		Sep-01-17 08:08		Sep-01-17 08:27		Sep-01-17 08:46		Sep-01-17 09:03	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00201	0.00201	<0.00198	0.00198	<0.00200	0.00200
Toluene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00201	0.00201	<0.00198	0.00198	<0.00200	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00201	0.00201	<0.00198	0.00198	<0.00200	0.00200
m,p-Xylenes		<0.00401	0.00401	<0.00398	0.00398	<0.00398	0.00398	<0.00402	0.00402	<0.00397	0.00397	<0.00399	0.00399
o-Xylene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00201	0.00201	<0.00198	0.00198	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00201	0.00201	<0.00198	0.00198	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00201	0.00201	<0.00198	0.00198	<0.00200	0.00200
Inorganic Anions by EPA 300/300.1	***Extracted:***	Sep-05-17 14:35		Sep-05-17 14:35		Sep-05-17 14:35		Sep-05-17 14:35		Sep-05-17 14:35		Sep-05-17 14:35	
	Analyzed:	Sep-05-17 19:24		Sep-05-17 19:34		Sep-05-17 20:05		Sep-05-17 20:16		Sep-05-17 20:26		Sep-05-17 20:36	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		32.6	4.98	48.2	4.94	26.2	4.96	22.8	4.91	<4.95	4.95	24.2	4.95
TPH By SW8015 Mod	***Extracted:***	Aug-29-17 16:00		Aug-29-17 16:00		Aug-29-17 16:00		Aug-29-17 16:00		Aug-29-17 16:00		Aug-29-17 16:00	
	Analyzed:	Aug-30-17 04:23		Aug-30-17 04:45		Aug-30-17 05:05		Aug-30-17 05:26		Aug-30-17 05:47		Aug-30-17 06:07	
	Units/RL:	mg/kg	RL	mg/kg	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	<14.9	14.9	<14.9	14.9	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	25.0	14.9	<15.0	15.0
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0
Total TPH		<15.0	15.0	<15.0	15.0	<15.0	15.0	<14.9	14.9	25.0	14.9	<15.0	15.0

Kelsey Brooks
Project Manager

Analytical Report 561420

for

COG Operating LLC

Project Manager: Aaron Lieb

Cuatro Hijos Fee #4H

11-SEP-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

11-SEP-17

Project Manager: **Aaron Lieb**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **561420**
Cuatro Hijos Fee #4H
Project Address: Cuatro Hijos Fee #4

Aaron Lieb:

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) 561420. 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. 561420 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 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North	S	08-23-17 10:00		561420-001
North	S	08-23-17 10:00	1 ft	561420-002
South	S	08-23-17 10:00		561420-003
South	S	08-23-17 10:00	1 ft	561420-004
West	S	08-23-17 10:00		561420-005
West	S	08-23-17 10:00	1 ft	561420-006

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3026428 BTEX by EPA 8021B

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

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**North**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-001	Date Collected:	08.23.17 10.00		

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**32.6**	4.98	mg/kg	09.05.17 19.24		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 04.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 04.23	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 04.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 04.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	08.30.17 04.23	
o-Terphenyl	84-15-1	98	%	70-135	08.30.17 04.23	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**North**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-001	Date Collected:	08.23.17 10.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.01.17 06.30	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.01.17 06.30	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.01.17 06.30	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.01.17 06.30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.01.17 06.30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.01.17 06.30	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.01.17 06.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	80-120	09.01.17 06.30	
1,4-Difluorobenzene	540-36-3	96	%	80-120	09.01.17 06.30	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**North**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-002	Date Collected:	08.23.17 10.00	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**48.2**	4.94	mg/kg	09.05.17 19.34		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 04.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 04.45	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 04.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 04.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	08.30.17 04.45	
o-Terphenyl	84-15-1	97	%	70-135	08.30.17 04.45	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**North**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-002	Date Collected:	08.23.17 10.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.01.17 06.49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.01.17 06.49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.01.17 06.49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.01.17 06.49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.01.17 06.49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.01.17 06.49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.01.17 06.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	92	%	80-120	09.01.17 06.49	
1,4-Difluorobenzene	540-36-3	85	%	80-120	09.01.17 06.49	

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**South**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-003	Date Collected:	08.23.17 10.00		

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**26.2**	4.96	mg/kg	09.05.17 20.05		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 05.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 05.05	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 05.05	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 05.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	08.30.17 05.05	
o-Terphenyl	84-15-1	105	%	70-135	08.30.17 05.05	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**South**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-003	Date Collected:	08.23.17 10.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.01.17 08.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.01.17 08.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.01.17 08.08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.01.17 08.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.01.17 08.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.01.17 08.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.01.17 08.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	101	%	80-120	09.01.17 08.08	
1,4-Difluorobenzene	540-36-3	91	%	80-120	09.01.17 08.08	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**South**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-004	Date Collected:	08.23.17 10.00	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**22.8**	4.91	mg/kg	09.05.17 20.16		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	08.30.17 05.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	08.30.17 05.26	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	08.30.17 05.26	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	08.30.17 05.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	08.30.17 05.26	
o-Terphenyl	84-15-1	98	%	70-135	08.30.17 05.26	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**South**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-004	Date Collected:	08.23.17 10.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.01.17 08.27	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.01.17 08.27	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.01.17 08.27	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.01.17 08.27	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.01.17 08.27	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.01.17 08.27	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.01.17 08.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	88	%	80-120	09.01.17 08.27	
4-Bromofluorobenzene	460-00-4	97	%	80-120	09.01.17 08.27	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**West**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-005	Date Collected:	08.23.17 10.00		

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	09.05.17 20.26	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	08.30.17 05.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	**25.0**	14.9	mg/kg	08.30.17 05.47		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	08.30.17 05.47	U	1
Total TPH	PHC635	**25.0**	14.9	mg/kg	08.30.17 05.47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	08.30.17 05.47	
o-Terphenyl	84-15-1	99	%	70-135	08.30.17 05.47	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**West**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-005	Date Collected:	08.23.17 10.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.01.17 08.46	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	09.01.17 08.46	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	09.01.17 08.46	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	09.01.17 08.46	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	09.01.17 08.46	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	09.01.17 08.46	U	1
Total BTEX		<0.00198	0.00198	mg/kg	09.01.17 08.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	80-120	09.01.17 08.46	
1,4-Difluorobenzene	540-36-3	97	%	80-120	09.01.17 08.46	

Certificate of Analytical Results 561420

COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**West**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-006	Date Collected:	08.23.17 10.00	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MNV			% Moisture:	
Analyst:	MNV	Date Prep:	09.05.17 14.35	Basis:	Wet Weight
Seq Number:	3026758				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.2**	4.95	mg/kg	09.05.17 20.36		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	08.29.17 16.00	Basis:	Wet Weight
Seq Number:	3026605				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	08.30.17 06.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	08.30.17 06.07	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	08.30.17 06.07	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	08.30.17 06.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	08.30.17 06.07	
o-Terphenyl	84-15-1	97	%	70-135	08.30.17 06.07	

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COG Operating LLC, Artesia, NM

Cuatro Hijos Fee #4H

Sample Id:	**West**	Matrix:	Soil	Date Received:	08.26.17 14.00
Lab Sample Id:	561420-006	Date Collected:	08.23.17 10.00	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	08.31.17 16.40	Basis:	Wet Weight
Seq Number:	3026428				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.01.17 09.03	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.01.17 09.03	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.01.17 09.03	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.01.17 09.03	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.01.17 09.03	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.01.17 09.03	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.01.17 09.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	88	%	80-120	09.01.17 09.03	
1,4-Difluorobenzene	540-36-3	100	%	80-120	09.01.17 09.03	

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

QC Summary 561420

COG Operating LLC

Cuatro Hijos Fee #4H

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3026758 Matrix: Solid Date Prep: 09.05.17
MB Sample Id: 730381-1-BLK LCS Sample Id: 730381-1-BKS LCSD Sample Id: 730381-1-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	252	101	253	101	90-110	0	20	mg/kg	09.05.17 16:49	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3026758 Matrix: Soil Date Prep: 09.05.17
Parent Sample Id: 561420-002 MS Sample Id: 561420-002 S MSD Sample Id: 561420-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	48.2	247	290	98	290	98	90-110	0	20	mg/kg	09.05.17 19:45	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P
Seq Number: 3026758 Matrix: Soil Date Prep: 09.05.17
Parent Sample Id: 561471-001 MS Sample Id: 561471-001 S MSD Sample Id: 561471-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	93.0	247	339	100	340	100	90-110	0	20	mg/kg	09.05.17 17:20	

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3026605 Matrix: Solid Date Prep: 08.29.17
MB Sample Id: 730143-1-BLK LCS Sample Id: 730143-1-BKS LCSD Sample Id: 730143-1-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	904	90	851	85	70-135	6	35	mg/kg	09.05.17 09:32	
Diesel Range Organics (DRO)	<15.0	1000	1140	114	1030	103	70-135	10	35	mg/kg	09.05.17 09:32	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		120		97		70-135	%	09.05.17 09:32
o-Terphenyl	109		108		100		70-135	%	09.05.17 09:32

QC Summary 561420

COG Operating LLC

Cuatro Hijos Fee #4H

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3026605 Matrix: Soil Date Prep: 08.29.17
Parent Sample Id: 561417-006 MS Sample Id: 561417-006 S MSD Sample Id: 561417-006 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	999	889	89	886	89	70-135	0	35	mg/kg	09.05.17 09:32	
Diesel Range Organics (DRO)	<15.0	999	1100	110	1100	110	70-135	0	35	mg/kg	09.05.17 09:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		117		70-135	%	09.05.17 09:32
o-Terphenyl	103		107		70-135	%	09.05.17 09:32

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3026428 Matrix: Solid Date Prep: 08.31.17
MB Sample Id: 730213-1-BLK LCS Sample Id: 730213-1-BKS LCSD Sample Id: 730213-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.115	115	0.110	110	70-130	4	35	mg/kg	09.01.17 02:04	
Toluene	<0.00201	0.100	0.115	115	0.108	108	70-130	6	35	mg/kg	09.01.17 02:04	
Ethylbenzene	<0.00201	0.100	0.117	117	0.110	110	71-129	6	35	mg/kg	09.01.17 02:04	
m,p-Xylenes	<0.00402	0.201	0.227	113	0.213	107	70-135	6	35	mg/kg	09.01.17 02:04	
o-Xylene	<0.00201	0.100	0.111	111	0.105	105	71-133	6	35	mg/kg	09.01.17 02:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	82		93		93		80-120	%	09.01.17 02:04
4-Bromofluorobenzene	86		110		104		80-120	%	09.01.17 02:04

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3026428 Matrix: Soil Date Prep: 08.31.17
Parent Sample Id: 561418-003 MS Sample Id: 561418-003 S MSD Sample Id: 561418-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00353	0.177	0.0453	26	0.0419	24	70-130	8	35	mg/kg	09.01.17 02:42	X
Toluene	<0.00353	0.177	0.0705	40	0.0647	37	70-130	9	35	mg/kg	09.01.17 02:42	X
Ethylbenzene	<0.00353	0.177	0.101	57	0.0940	54	71-129	7	35	mg/kg	09.01.17 02:42	X
m,p-Xylenes	<0.00707	0.353	0.202	57	0.187	54	70-135	8	35	mg/kg	09.01.17 02:42	X
o-Xylene	<0.00353	0.177	0.116	66	0.109	63	71-133	6	35	mg/kg	09.01.17 02:42	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		92		80-120	%	09.01.17 02:42
4-Bromofluorobenzene	107		91		80-120	%	09.01.17 02:42

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

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

www.xenco.com

Xenco Quote # | Xenco Job # 561420

Client / Reporting Information

Company Name / Branch: COG Operating LLC

Company Address: 2407 PECOS Avenue Artesia NM 88210

Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com | Phone No: 575-748-1553

Project Contact: Aaron Lieb

Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Cuatro Hijos Fee #4H

Project Location: Cuatro Hijos Fee #4

Invoice To: COG Operating LLC, Attn: Robert Mcneill, 600 W. Illinois, 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	Chloride	Field Comments
1	NORTH	SURF	8-23-17	11:00AM											X	X	X	
2	NORTH	1'													X	X	X	
3	SOUTH	SURF													X	X	X	
4	SOUTH	1'													X	X	X	
5	WEST	SURF													X	X	X	
6	WEST	1'													X	X	X	
7																		
8																		
9																		
10																		

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:

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	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3	[signature]	8-25-17 12:30PM	[signature] 8-25-17 12:30	[signature]	8-25-17 2:45	
4	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
5	ARCESIO	8-26-17 14:00				✓ 8.6°

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 1 Of 1

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Midland, Texas (432-704-5251)
www.xenco.com
Phoenix, Arizona (480-355-0900)

Xenco Quote #
Xenco Job # 561420

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Cuatro Hijos Fee #4H
Project Location: Cuatro Hijos Fee #4
Invoice To: COG Operating LLC, Attn: Robert Mcneill, 600 W. Illinois, 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	BTEX	Chloride	Field Comments
1	NORTH	SURF	8-23-17	1:00 AM											X	X	X	
2	NORTH	1'													X	X	X	
3	SOUTH	SURF													X	X	X	
4	SOUTH	1'													X	X	X	
5	WEST	SURF													X	X	X	
6	WEST	1'													X	X	X	
7																		
8																		
9																		
10																		

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:

Temp: 2.8 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 2.6

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						
3		8-25-17 12:30 PM	Sid Butler 8-25-17 12:30	Sid Butler	8-25-17 2:45	
4						
5	ARCESIO	8-26-17 14:00		Custody Seal #	Preserved where applicable	On Ice: 1 Cooler Temp: 8.6C 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.

Final 1.000

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 08/26/2017 02:00:00 PM

Work Order #: 561420

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)?	2.6
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**No**
#21 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: Shawnee Smith Date: 08/29/2017
Shawnee Smith

Checklist reviewed by: Kelsey Brooks Date: 08/29/2017
Kelsey Brooks

Analytical Report 565670

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

COG- Cuatro Hijos Fee #4h

212C-MD-00958 Task#17

20-OCT-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), 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 (T104704400-17-13)
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)

20-OCT-17

Project Manager: **Ike Tavarez**
Tetra Tech- Midland
4000 N. Big Spring Suite 401
Midland, TX 79705

Reference: XENCO Report No(s): **565670**
COG- Cuatro Hijos Fee #4h
Project Address: Lea County, New Mexico

Ike Tavarez:

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) 565670. 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. 565670 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 565670

Tetra Tech- Midland, Midland, TX

COG- Cuatro Hijos Fee #4h

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH #1 (0-1')	S	10-11-17 00:00		565670-001
BH #1 (2-3')	S	10-11-17 00:00		565670-002
BH #1 (4-5')	S	10-11-17 00:00		565670-003
BH #1 (6-7')	S	10-11-17 00:00		565670-004
BH #1 (9-10')	S	10-11-17 00:00		565670-005
BH #1 (14-15')	S	10-11-17 00:00		565670-006
BH #1 (19-20')	S	10-11-17 00:00		565670-007
BH #1 (24-25')	S	10-11-17 00:00		565670-008
BH #1 (29-30')	S	10-11-17 00:00		565670-009
BH #1 (34-35')	S	10-11-17 00:00		565670-010
BH #1 (39-40')	S	10-11-17 00:00		565670-011
BH #1 (44-45')	S	10-11-17 00:00		565670-012
BH #1 (49-50')	S	10-11-17 00:00		565670-013
BH #1 (54-55')	S	10-11-17 00:00		565670-014

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 565670

Tetra Tech- Midland, Midland, TX

Project Name: COG- Cuatro Hijos Fee #4h

Project Id: 212C-MD-00958 Task#17
Contact: Ike Tavarez
Project Location: Lea County, New Mexico

Date Received in Lab: Mon Oct-16-17 01:48 pm
Report Date: 20-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	565670-001		565670-002		565670-003		565670-004		565670-005		565670-006	
	Field Id:	BH #1 (0-1')		BH #1 (2-3')		BH #1 (4-5')		BH #1 (6-7')		BH #1 (9-10')		BH #1 (14-15')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00	
Chloride by EPA 300	***Extracted:***	Oct-17-17 09:15		Oct-17-17 09:15		Oct-17-17 09:15		Oct-17-17 09:15		Oct-17-17 09:15		Oct-17-17 09:15	
	Analyzed:	Oct-17-17 14:09		Oct-17-17 14:17		Oct-17-17 14:25		Oct-17-17 14:32		Oct-17-17 14:55		Oct-17-17 15:03	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		4970	49.0	7360	49.0	5600	49.6	6050	49.1	5100	49.1	2480	24.5

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 565670

Tetra Tech- Midland, Midland, TX

Project Name: COG- Cuatro Hijos Fee #4h

Project Id: 212C-MD-00958 Task#17
Contact: Ike Tavarez
Project Location: Lea County, New Mexico

Date Received in Lab: Mon Oct-16-17 01:48 pm
Report Date: 20-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	565670-007		565670-008		565670-009		565670-010		565670-011		565670-012	
	Field Id:	BH #1 (19-20')		BH #1 (24-25')		BH #1 (29-30')		BH #1 (34-35')		BH #1 (39-40')		BH #1 (44-45')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00		Oct-11-17 00:00	
Chloride by EPA 300	***Extracted:***	Oct-17-17 09:15		Oct-17-17 09:15		Oct-17-17 15:00		Oct-17-17 15:00		Oct-17-17 15:00		Oct-17-17 15:00	
	Analyzed:	Oct-17-17 15:11		Oct-17-17 15:18		Oct-17-17 20:03		Oct-17-17 20:26		Oct-17-17 20:33		Oct-17-17 20:41	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		567	4.90	105	4.90	140	5.00	205	4.92	230	4.93	246	4.92

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 565670

Tetra Tech- Midland, Midland, TX

Project Name: COG- Cuatro Hijos Fee #4h

Project Id: 212C-MD-00958 Task#17
Contact: Ike Tavarez
Project Location: Lea County, New Mexico

Date Received in Lab: Mon Oct-16-17 01:48 pm
Report Date: 20-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested								
	Lab Id:	565670-013		565670-014				
	Field Id:	BH #1 (49-50')		BH #1 (54-55')				
	Depth:							
	Matrix:	SOIL		SOIL				
	Sampled:	Oct-11-17 00:00		Oct-11-17 00:00				
Chloride by EPA 300	***Extracted:***	Oct-17-17 15:00		Oct-17-17 15:00				
	Analyzed:	Oct-17-17 20:49		Oct-17-17 21:12				
	Units/RL:	mg/kg	RL	mg/kg	RL			
Chloride		96.0	4.96	37.0	4.93			

Kelsey Brooks
Project Manager

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	

BS / BSD Recoveries

Project Name: COG- Cuatro Hijos Fee #4h

Work Order #: 565670 **Project ID:** 212C-MD-00958 Task#17

Analyst: MNV **Date Prepared:** 10/17/2017 **Date Analyzed:** 10/17/2017

Lab Batch ID: 3030762 **Sample:** 7632739-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	242	97	250	241	96	0	90-110	20	

Analyst: MNV **Date Prepared:** 10/17/2017 **Date Analyzed:** 10/17/2017

Lab Batch ID: 3030767 **Sample:** 7632783-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	241	96	250	239	96	1	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: COG- Cuatro Hijos Fee #4h

Work Order # : 565670 **Project ID:** 212C-MD-00958 Task#17

Lab Batch ID: 3030762 **QC- Sample ID:** 565662-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/17/2017 **Date Prepared:** 10/17/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<4.90	245	250	102	245	246	100	2	90-110	20	

Lab Batch ID: 3030762 **QC- Sample ID:** 565667-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/17/2017 **Date Prepared:** 10/17/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<4.90	245	253	103	245	252	103	0	90-110	20	

Lab Batch ID: 3030767 **QC- Sample ID:** 565670-009 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/17/2017 **Date Prepared:** 10/17/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	140	250	388	99	250	383	97	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: COG- Cuatro Hijos Fee #4h

Work Order # : 565670 **Project ID:** 212C-MD-00958 Task#17

Lab Batch ID: 3030767 **QC- Sample ID:** 565740-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/17/2017 **Date Prepared:** 10/17/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	20.5	247	270	101	247	269	101	0	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland,Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

565670

Client Name: COG	**Site Manager:** Ike Tavarez
Project Name: Cuatro Hijos Fee #4h	
Project Location: (county, state) Lea County, New Mexico	**Project #:** 212C-MD-00958 Task#17
Invoice to:	
Receiving Laboratory: Xenco Midland Tx	**Sampler Signature:** Mike Carmona
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2017 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
	BH #1 (0-1')	10/11/2017			X				X			1	N															X							
	BH #1 (2-3')	10/11/2017			X				X			1	N															X							
	BH #1 (4-5')	10/11/2017			X				X			1	N															X							
	BH #1 (6-7')	10/11/2017			X				X			1	N															X							
	BH #1 (9-10')	10/11/2017			X				X			1	N															X							
	BH #1 (14-15')	10/11/2017			X				X			1	N															X							
	BH #1 (19-20')	10/11/2017			X				X			1	N															X							
	BH #1 (24-25')	10/11/2017			X				X			1	N															X							
	BH #1 (29-30')	10/11/2017			X				X			1	N															X							
	BH #1 (34-35')	10/11/2017			X				X			1	N															X							

Final 1.000

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Relinquished by: Mike Carmona	Date: 10/16/17	Time: 1348
Relinquished by:	Date:	Time:
Relinquished by:	Date:	Time:

Received by: Corrin Hurd	Date: 10/16	Time: 13:48
Received by:	Date:	Time:
Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

REMARKS:

STANDARD

☐ **RUSH:** Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

ORIGI

Temp: .4 IR ID:R-8

CF:(0-6: -0.2°C)
(6-23: +0.2°C)

Corrected Temp: .2

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

565670

Client Name: COG	Site Manager: Ike Tavarez
Project Name: Cuatro Hijos Fee #4h	
Project Location: (county, state) Lea County, New Mexico	Project #: 212C-MD-00958 Task#17
Invoice to:	
Receiving Laboratory: Xenco Midland Tx	Sampler Signature: Mike Carmona
Comments:	

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)
	BH #1 (39-40')	10/11/2017			X				X			1	N
	BH #1 (44-45')	10/11/2017			X				X			1	N
	BH #1 (49-50')	10/11/2017			X				X			1	N
	BH #1 (54-55')	10/11/2017			X				X			1	N

ANALYSIS REQUEST
(Circle or Specify Method No.)

BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
														X							
														X							
														X							
														X							
														X							

Final 1.000

Page 13 of 14

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Mike Carmona	10-16-17	1348	Corrin Hlad	10/16	13:48
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

REMARKS:

STANDARD

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

Temp: 4 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 2

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 10/16/2017 01:48:00 PM

Work Order #: 565670

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)?	.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: 10/16/2017

Checklist reviewed by: Kelsey Brooks Date: 10/17/2017