

SITE INFORMATION

Report Type: Work Plan 1RP-4683

General Site Information:

Site:	Salvador Fee #4H				
Company:	COG Operating LLC				
Section, Township and Range	Unit M	Sec. 10	T 24S	R 34E	
Lease Number:	API No. 30-025-41538				
County:	Lea County				
GPS:	32.2253647° N			103.4642639° W	
Surface Owner:	State				
Mineral Owner:					
Directions:	From the intersection of NM 128 and Delaware Basin Rd, travel east on NM 128 for approximately 2.6 mi, turn north onto lease road for 0.80 mi, turn east for 450', turn north onto lease road for 0.20 miles to location.				

Release Data:

Date Released:	4/13/2017
Type Release:	Produced Water
Source of Contamination:	Illegal Dump
Fluid Released:	20 bbls
Fluids Recovered:	18 bbls

Official Communication:

Name:	Robert McNeil	Ike Tavarez
Company:	COG Operating, LLC	Tetra Tech
Address:	One Concho Center 600 W. Illinois Ave.	4000 N. Big Spring 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@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	50' - 75'
>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



October 13, 2017

NMOCD approves of the delineation completed and proposed remedial activity for 1RP-4683 with one condition: submit 2 confirmatory surface samples tested for TPH extended in the area represented by T-1.

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., Salvador Fee #4H, Unit M, Section 10, Township 24 South, Range 34 East, Lea County, New Mexico. 1RP-4683.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to prepare a work plan for a release that occurred at the Salvador Fee #4H, Unit M, Section 10, Township 24 South, Range 34 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.2253647°, W 103.4642639°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on April 13, 2017, and released approximately twenty (20) barrels of produced water due to an illegal dump of a water truck. Approximately eighteen (18) barrels of produced water was recovered. The release occurred on the north east corner of the pad and migrated into the pasture, impacting an area measuring approximately 60' x 130'. The initial C-141 form is included in Appendix A.

Groundwater

No water wells were listed within Section 10 on the New Mexico Office of the State Engineer's database. The nearest well is located in Section 11, approximately 1.4 miles to the northeast of the site, with a reported depth to water of approximately 40' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is between 50' and 75' 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 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

On June 21, 2017, COG personnel were onsite to evaluate and sample the release area. Two (2) sample trenches (T-1 and T-2) were installed in the release area to total depths of 10.0' and 12.0' below surface, respectively. Additionally, four (4) trenches (North, South, East, and West) were installed to depths of 1.0' below surface outside of the spill footprint in order to define the horizontal extents. A backhoe was used to collect the soil samples, excavating the soils, removing the loose materials from the bottom of the trench, and using the backhoe bucket to collect the sample. 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 collected showed benzene and total BTEX concentrations below the laboratory reporting limit. Additionally, none of the samples showed significant chloride concentrations to the soils. The areas of trenches (T-1, T-2, North, South, East, and West) showed chloride highs of 34.3 mg/kg at surface, 9.01 mg/kg at 1.0', <5.00 mg/kg at 1.0, 34.5 mg/kg at surface, 7.38 mg/kg at 1.0' and 18.9 mg/kg at surface, respectively.

In addition, none of the trenches showed any TPH concentrations above the RRAL, with the exception of T-1. The area of trench (T-1) showed an elevated TPH concentration of 1,540 mg/kg at surface, which declined with depth to <15.0 mg/kg at 1.0' and showed a bottom trench concentration of 46.8 mg/kg at 10.0' below surface.

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. A surficial scrape will be performed in the area of trench (T-1) to remove the TPH impact soils. 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 safety 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

A handwritten signature in blue ink that reads 'Clair Gonzales'.

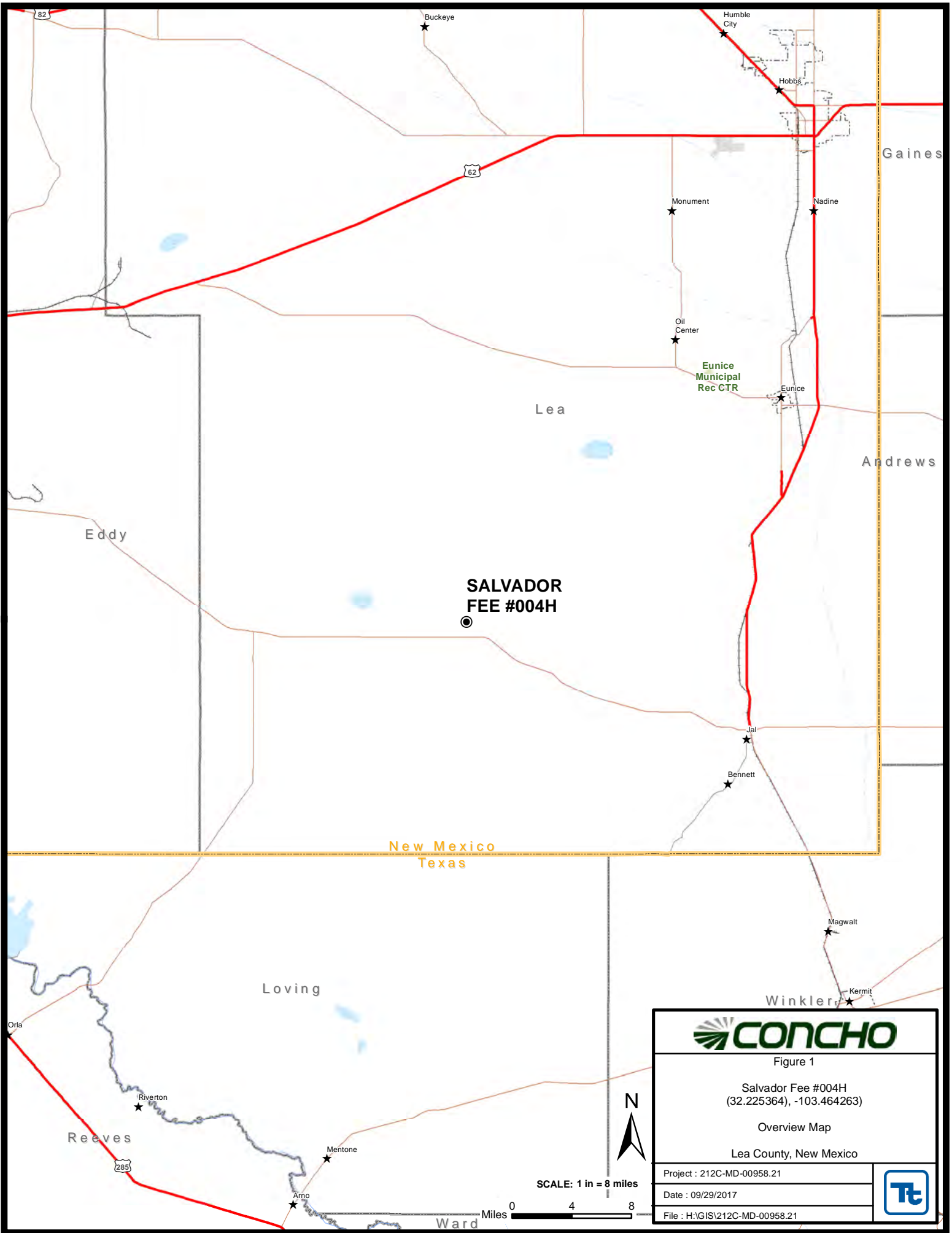
Clair Gonzales,
Geologist

A handwritten signature in blue ink that reads 'Ike Tavarez'.

Ike Tavarez,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG
Rebecca Haskell – COG
Amber Groves - SLO

Figures



**SALVADOR
FEE #004H**

New Mexico
Texas



Figure 1

Salvador Fee #004H
(32.225364, -103.464263)

Overview Map

Lea County, New Mexico

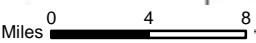
Project : 212C-MD-00958.21

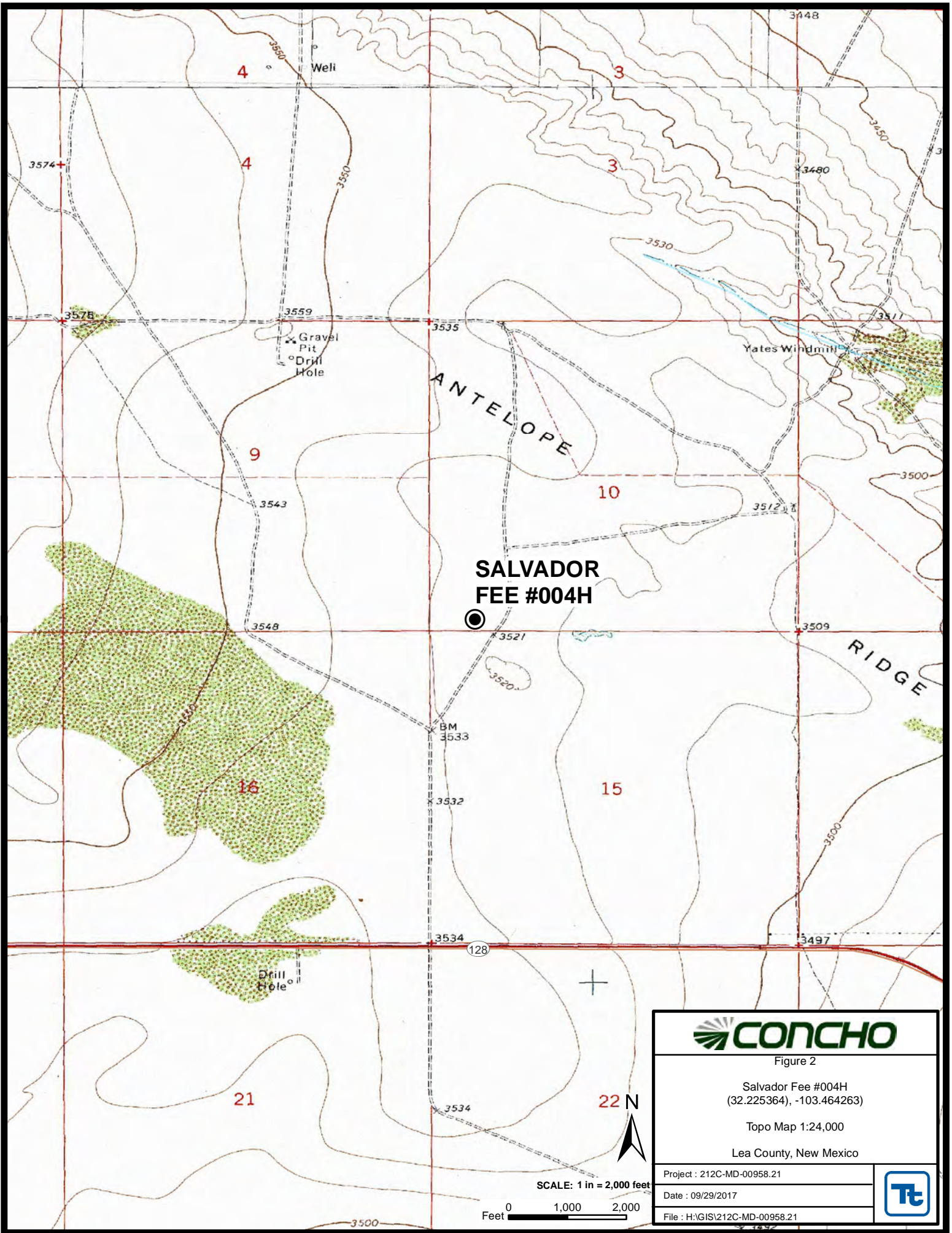
Date : 09/29/2017

File : H:\GIS\212C-MD-00958.21



SCALE: 1 in = 8 miles





**SALVADOR
FEE #004H**



Figure 2

Salvador Fee #004H
(32.225364, -103.464263)

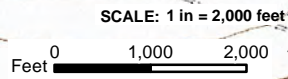
Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00958.21

Date : 09/29/2017

File : H:\GIS\212C-MD-00958.21



PASTURE

SPILL AREA
(60'x130')

North

T2

East

West

T1

PAD

South

EXPLANATION

- SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- ▨ SPILL AREA



Esri, HERE, DeLorme, Mapmy
 DigitalGlobe, GeoEye, (2017) D
 C
 Feet 0 50 100



Figure 3

Salvador Fee #004H
(32.225364), -103.464263)

Spill Assessment Map

Lea County, New Mexico

Project : 212C-MD-00958.21

Date : 09/29/2017

File : H:\GIS\212C-MD-00958.21



PASTURE

SPILL AREA
(60'x130')

North

T2

East

West

PAD

T1

SURFACE SCRAPE

South

EXPLANATION

- SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- ▨ PROPOSED EXCAVATION AREA



Esri, HERE, DeLorme, Mapmy
 DigitalGlobe, GeoEye, (2017) D
 C
 Feet 0 50 100



Figure 4

Salvador Fee #004H
(32.225364), -103.464263)

Proposed Excavation Area & Depth Map

Lea County, New Mexico

Project : 212C-MD-00958.21

Date : 09/29/2017

File : H:\GIS\212C-MD-00958.21



Tables

Table 1
COG Operating LLC.
Salvador 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	C6-C10	C10-C28	C28-C35	Total						
T-1	6/21/2017	Surface	X		<15.0	1,350	189	1,540	<0.00344	<0.00344	<0.00344	<0.00344	<0.00344	34.3
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00388	<0.00388	<0.00388	<0.00388	<0.00388	16.0
	"	2	X		<15.0	55.6	<15.0	55.6	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	16.8
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	13.6
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	7.27
	"	7	X		<15.0	<15.0	<15.0	<15.0	<0.00353	<0.00353	<0.00353	<0.00353	<0.00353	5.69
"	10	X		<15.0	46.8	<15.0	46.8	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	8.90	
T-2	6/21/2017	Surface	X		<15.0	42.2	<15.0	42.2	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<4.97
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	9.01
	"	2	X		<15.0	<15.0	<15.0	<15.0	<0.00358	<0.00358	<0.00358	<0.00358	<0.00358	6.69
	"	7	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	6.16
"	12	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	7.25	
North	6/21/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.99
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<5.00
South	6/21/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00351	<0.00351	<0.00351	<0.00351	<0.00351	34.5
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00364	<0.00364	<0.00364	<0.00364	<0.00364	29.1
East	6/21/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00361	<0.00361	<0.00361	<0.00361	<0.00361	<4.96
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	7.38
West	6/21/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00356	<0.00356	<0.00356	<0.00356	<0.00356	18.9
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.96

Proposed Excavation Depths
 (-) Not Analyzed

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: SALVADOR FEE #004H	Facility Type: Illegal Dump	

Surface Owner: State	Mineral Owner:	API No. 30-025-41538
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	10	24S	34E	190'	South	660'	West	Lea

Latitude 32.2253647 Longitude 103.4642639

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 20bbls	Volume Recovered: 18bbls
Source of Release: Illegal Dump	Date and Hour of Occurrence: 4/13/2017 2:00pm	Date and Hour of Discovery: 4/13/2017 2:00pm
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

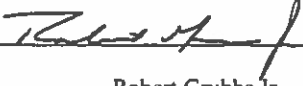
Describe Cause of Problem and Remedial Action Taken.*

A water truck had backed up on the North East corner of the pad open its valve and released the fluid.

Describe Area Affected and Cleanup Action Taken.*

This release was caused by an illegal dump. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Robert Grubbs Jr.	Approved by Environmental Specialist:	
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: rgrubbs@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: April 18, 2017 Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

Appendix B

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

23 South 33 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

23 South 34 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

23 South 35 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

24 South 33 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

24 South 34 East

6	5	4	3	2	1
81		475			
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

24 South 35 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	97	21	22	23
30	29	28	27	26	25
31	32	33	34	35	36

25 South 33 East

6	5	4	3	172	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	

25 South 34 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

25 South 35 East

6	5	4	3	108	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	

- 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	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 02373	C	LE		4	1	32	24S	34E		641979	3560916*	600		
C 02386		LE		4	1	2	04	24S	34E	643962	3569290*	575	475	100
C 02387		LE				1	11	24S	34E	646513	3567613*	62	40	22
C 02397		LE		4	1	2	04	24S	34E	643962	3569290*	575	475	100
C 03932 POD13	CUB	LE		4	2	3	15	24S	34E	645314	3565203	90		
C 03932 POD3	CUB	LE		4	3	2	05	24S	34E	642442	3568787	100		
C 03932 POD8	CUB	LE		4	2	4	07	24S	34E	641120	3566769	72		
C 03943 POD1	CUB	LE		2	4	2	21	24S	34E	644523	3564266	610	431	179
C 04014 POD1	CUB	LE		1	1	3	06	24S	34E	639811	3568638	91	81	10

Average Depth to Water: **300 feet**
 Minimum Depth: **40 feet**
 Maximum Depth: **475 feet**

Record Count: 9

PLSS Search:

Township: 24S **Range:** 34E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

8/28/17 1:03 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C



Certificate of Analysis Summary 553115

COG Operating LLC, Artesia, NM

Project Name: Salvador Fee #4H



Project Id:
Contact: Aaron Lieb
Project Location: Salvador Fee #4H

Date Received in Lab: Sat May-13-17 10:00 am
Report Date: 22-MAY-17
Project Manager: Liz Givens

Analysis Requested	Lab Id:	553115-001				
	Field Id:	AH-1				
	Depth:					
	Matrix:	SOIL				
	Sampled:	May-11-17 11:00				
BTEX by EPA 8021B	Extracted:	May-18-17 16:00				
	Analyzed:	May-19-17 07:35				
	Units/RL:	mg/kg RL				
Benzene		<0.00372 0.00372				
Toluene		<0.00372 0.00372				
Ethylbenzene		<0.00372 0.00372				
m,p-Xylenes		<0.00743 0.00743				
o-Xylene		<0.00372 0.00372				
Total Xylenes		<0.00372 0.00372				
Total BTEX		<0.00372 0.00372				
Inorganic Anions by EPA 300/300.1	Extracted:	May-20-17 18:22				
	Analyzed:	May-20-17 23:32				
	Units/RL:	mg/kg RL				
Chloride		409 4.93				
TPH By SW8015 Mod	Extracted:	May-16-17 08:00				
	Analyzed:	May-16-17 23:41				
	Units/RL:	mg/kg RL				
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0				
C10-C28 Diesel Range Hydrocarbons		607 15.0				
Total TPH		607 15.0				

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

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

Brandi Ritcherson
Project Manager

Analytical Report 553115

for
COG Operating LLC

Project Manager: Aaron Lieb

Salvador Fee #4H

22-MAY-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)



22-MAY-17

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

Reference: XENCO Report No(s): **553115**
Salvador Fee #4H
Project Address: Salvador Fee #4H

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) 553115. 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. 553115 will be filed for 60 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,

Brandi Ritcherson

Project Manager

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Sample Cross Reference 553115



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1	S	05-11-17 11:00	N/A	553115-001



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Salvador Fee #4H

Project ID:
Work Order Number(s): 553115

Report Date: 22-MAY-17
Date Received: 05/13/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3017710 BTEX by EPA 8021B

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

COG Operating LLC, Artesia, NM Salvador Fee #4H

Sample Id: AH-1	Matrix: Soil	Date Received: 05.13.17 10.00
Lab Sample Id: 553115-001	Date Collected: 05.11.17 11.00	
Analytical Method: Inorganic Anions by EPA 300/300.1		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 05.20.17 18.22	Basis: Wet Weight
Seq Number: 3017808		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	409	4.93	mg/kg	05.20.17 23.32		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 05.16.17 08.00
Seq Number: 3017669	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 23.41	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	607	15.0	mg/kg	05.16.17 23.41		1
Total TPH	PHC635	607	15.0	mg/kg	05.16.17 23.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	05.16.17 23.41	
o-Terphenyl	84-15-1	105	%	70-135	05.16.17 23.41	

Analytical Method: BTEX by EPA 8021B	Prep Method: SW5030B
Tech: ALJ	% Moisture:
Analyst: ALJ	Date Prep: 05.18.17 16.00
Seq Number: 3017710	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00372	0.00372	mg/kg	05.19.17 07.35	U	1
Toluene	108-88-3	<0.00372	0.00372	mg/kg	05.19.17 07.35	U	1
Ethylbenzene	100-41-4	<0.00372	0.00372	mg/kg	05.19.17 07.35	U	1
m,p-Xylenes	179601-23-1	<0.00743	0.00743	mg/kg	05.19.17 07.35	U	1
o-Xylene	95-47-6	<0.00372	0.00372	mg/kg	05.19.17 07.35	U	1
Total Xylenes	1330-20-7	<0.00372	0.00372	mg/kg	05.19.17 07.35	U	1
Total BTEX		<0.00372	0.00372	mg/kg	05.19.17 07.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	101	%	80-120	05.19.17 07.35	
1,4-Difluorobenzene	540-36-3	88	%	80-120	05.19.17 07.35	

- 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

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5332 Blackberry Drive, San Antonio TX 78238	(214) 902 0300	(214) 351-9139
1211 W Florida Ave, Midland, TX 79701	(210) 509-3334	(210) 509-3335
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(432) 563-1800	(432) 563-1713
	(602) 437-0330	



COG Operating LLC

Salvador Fee #4H

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017808

MB Sample Id: 724935-1-BLK

Matrix: Solid

LCS Sample Id: 724935-1-BKS

Prep Method: E300P

Date Prep: 05.20.17

LCSD Sample Id: 724935-1-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	251	100	252	101	90-110	0	20	mg/kg	05.20.17 21:00	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017808

Parent Sample Id: 553097-004

Matrix: Soil

MS Sample Id: 553097-004 S

Prep Method: E300P

Date Prep: 05.20.17

MSD Sample Id: 553097-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	507	249	748	97	760	102	90-110	2	20	mg/kg	05.20.17 21:23	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017808

Parent Sample Id: 553097-012

Matrix: Soil

MS Sample Id: 553097-012 S

Prep Method: E300P

Date Prep: 05.20.17

MSD Sample Id: 553097-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	463	246	687	91	686	91	90-110	0	20	mg/kg	05.20.17 23:10	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3017669

MB Sample Id: 724772-1-BLK

Matrix: Solid

LCS Sample Id: 724772-1-BKS

Prep Method: TX1005P

Date Prep: 05.16.17

LCSD Sample Id: 724772-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1100	110	1100	110	70-135	0	35	mg/kg	05.16.17 19:31	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1060	106	1090	109	70-135	3	35	mg/kg	05.16.17 19:31	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		127		121		70-135	%	05.16.17 19:31
o-Terphenyl	122		119		125		70-135	%	05.16.17 19:31



QC Summary 553115

COG Operating LLC

Salvador Fee #4H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3017669

Parent Sample Id: 553101-001

Matrix: Soil

MS Sample Id: 553101-001 S

Prep Method: TX1005P

Date Prep: 05.16.17

MSD Sample Id: 553101-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	999	935	94	925	93	70-135	1	35	mg/kg	05.16.17 20:28	
C10-C28 Diesel Range Hydrocarbons	145	999	1080	94	1080	94	70-135	0	35	mg/kg	05.16.17 20:28	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	96		98		70-135	%	05.16.17 20:28
o-Terphenyl	111		113		70-135	%	05.16.17 20:28

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017710

MB Sample Id: 724860-1-BLK

Matrix: Solid

LCS Sample Id: 724860-1-BKS

Prep Method: SW5030B

Date Prep: 05.18.17

LCSD Sample Id: 724860-1-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	0.0784	78	0.0898	90	70-130	14	35	mg/kg	05.18.17 13:37	
Toluene	<0.00200	0.100	0.0841	84	0.106	106	70-130	23	35	mg/kg	05.18.17 13:37	
Ethylbenzene	<0.00200	0.100	0.0929	93	0.103	103	71-129	10	35	mg/kg	05.18.17 13:37	
m,p-Xylenes	<0.00401	0.200	0.184	92	0.208	104	70-135	12	35	mg/kg	05.18.17 13:37	
o-Xylene	<0.00200	0.100	0.0863	86	0.108	108	71-133	22	35	mg/kg	05.18.17 13:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		102		93		80-120	%	05.18.17 13:37
4-Bromofluorobenzene	83		114		118		80-120	%	05.18.17 13:37

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017710

Parent Sample Id: 553116-024

Matrix: Soil

MS Sample Id: 553116-024 S

Prep Method: SW5030B

Date Prep: 05.18.17

MSD Sample Id: 553116-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0547	54	0.0793	79	70-130	37	35	mg/kg	05.18.17 14:43	XF
Toluene	<0.00202	0.101	0.0659	65	0.0783	78	70-130	17	35	mg/kg	05.18.17 14:43	X
Ethylbenzene	<0.00202	0.101	0.0602	60	0.0859	85	71-129	35	35	mg/kg	05.18.17 14:43	X
m,p-Xylenes	<0.00404	0.202	0.117	58	0.172	86	70-135	38	35	mg/kg	05.18.17 14:43	XF
o-Xylene	<0.00202	0.101	0.0547	54	0.0867	86	71-133	45	35	mg/kg	05.18.17 14:43	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		113		80-120	%	05.18.17 14:43
4-Bromofluorobenzene	106		116		80-120	%	05.18.17 14:43



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 05/13/2017 10:00:00 AM

Work Order #: 553115

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.5
#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)?	N/A
#21 VOC samples have zero headspace?	N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by: Jessica Kramer
 Jessica Kramer

Date: 05/15/2017

Checklist reviewed by: Holly Taylor
 Holly Taylor

Date: 05/16/2017



Certificate of Analysis Summary 556359

COG Operating LLC, Artesia, NM

Project Name: Salvador Fee #4H



Project Id:
Contact: Aaron Lieb
Project Location:

Date Received in Lab: Tue Jun-27-17 10:15 am
Report Date: 06-JUL-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	556359-001	556359-002	556359-003	556359-004	556359-005	556359-006
	<i>Field Id:</i>	T1-Surface	T1-1'	T1-2'	T1-3'	T1-4'	T1-7'
	<i>Depth:</i>		1 ft	2 ft	3 ft	4 ft	7 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jun-21-17 09:30	Jun-21-17 09:30	Jun-21-17 09:30	Jun-21-17 09:30	Jun-21-17 09:30	Jun-21-17 09:30
BTEX by EPA 8021B	<i>Extracted:</i>	Jul-03-17 12:00	Jul-03-17 12:00	Jun-30-17 08:00	Jul-01-17 07:50	Jun-29-17 17:15	Jul-03-17 12:00
	<i>Analyzed:</i>	Jul-03-17 14:40	Jul-03-17 14:56	Jun-30-17 11:57	Jul-01-17 16:32	Jun-29-17 23:06	Jul-03-17 15:32
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Benzene	<0.00344 0.00344	<0.00338 0.00338	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00353 0.00353
Toluene	<0.00344 0.00344	<0.00338 0.00338	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00353 0.00353	
Ethylbenzene	<0.00344 0.00344	<0.00338 0.00338	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00353 0.00353	
m_p-Xylenes	<0.00687 0.00687	<0.00676 0.00676	<0.00398 0.00398	<0.00397 0.00397	<0.00398 0.00398	<0.00707 0.00707	
o-Xylene	<0.00344 0.00344	<0.00338 0.00338	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00353 0.00353	
Total Xylenes	<0.00344 0.00344	<0.00338 0.00338	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00353 0.00353	
Total BTEX	<0.00344 0.00344	<0.00338 0.00338	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00353 0.00353	
Chloride by EPA 300	<i>Extracted:</i>	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00
	<i>Analyzed:</i>	Jul-03-17 15:01	Jul-03-17 15:24	Jul-03-17 15:32	Jul-03-17 15:39	Jul-03-17 15:47	Jul-03-17 16:10
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride	34.3 4.98	16.0 4.97	16.8 5.00	13.6 4.99	7.27 4.98	5.69 4.96	
TPH By SW8015 Mod	<i>Extracted:</i>	Jun-29-17 08:00	Jun-29-17 08:00	Jun-29-17 08:00	Jun-29-17 08:00	Jun-29-17 08:00	Jun-29-17 08:00
	<i>Analyzed:</i>	Jun-29-17 17:19	Jun-29-17 17:41	Jun-29-17 18:02	Jun-29-17 18:23	Jun-29-17 18:45	Jun-29-17 19:06
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	C6-C10 Gasoline Range Hydrocarbons	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
C10-C28 Diesel Range Organics	1350 15.0	<15.0 15.0	55.6 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
C28-C35 Oil Range Hydrocarbons	189 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Total TPH	1540 15.0	<15.0 15.0	55.6 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	

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

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Version: 1.9%

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 556359

COG Operating LLC, Artesia, NM

Project Name: Salvador Fee #4H



Project Id:
Contact: Aaron Lieb
Project Location:

Date Received in Lab: Tue Jun-27-17 10:15 am
Report Date: 06-JUL-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	556359-007	556359-008	556359-009	556359-010	556359-011	556359-012
	<i>Field Id:</i>	T1-10'	T2-Surface	T2-1'	T2-2'	T2-7'	T2-12'
	<i>Depth:</i>	10 ft		1 ft	2 ft	7 ft	12 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jun-21-17 09:30	Jun-21-17 10:00	Jun-21-17 10:00	Jun-21-17 10:00	Jun-21-17 10:00	Jun-21-17 10:00
BTEX by EPA 8021B	<i>Extracted:</i>	Jun-29-17 17:15	Jun-29-17 17:15	Jul-03-17 12:00	Jul-01-17 07:50	Jul-01-17 07:50	Jun-30-17 17:30
	<i>Analyzed:</i>	Jun-29-17 23:39	Jun-29-17 23:55	Jul-03-17 16:04	Jul-01-17 17:21	Jul-01-17 17:37	Jul-01-17 12:28
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Benzene	<0.00202 0.00202	<0.00201 0.00201	<0.00358 0.00358	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202
Toluene	<0.00202 0.00202	<0.00201 0.00201	<0.00358 0.00358	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	
Ethylbenzene	<0.00202 0.00202	<0.00201 0.00201	<0.00358 0.00358	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	
m,p-Xylenes	<0.00404 0.00404	<0.00402 0.00402	<0.00717 0.00717	<0.00402 0.00402	<0.00398 0.00398	<0.00403 0.00403	
o-Xylene	<0.00202 0.00202	<0.00201 0.00201	<0.00358 0.00358	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	
Total Xylenes	<0.00202 0.00202	<0.00201 0.00201	<0.00358 0.00358	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	
Total BTEX	<0.00202 0.00202	<0.00201 0.00201	<0.00358 0.00358	<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	
Chloride by EPA 300	<i>Extracted:</i>	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00
	<i>Analyzed:</i>	Jul-03-17 16:17	Jul-03-17 16:25	Jul-03-17 16:32	Jul-03-17 16:40	Jul-03-17 16:48	Jul-03-17 17:10
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride	8.90 4.99	<4.97 4.97	9.01 4.99	6.69 5.00	6.16 4.96	7.25 5.00	
TPH By SW8015 Mod	<i>Extracted:</i>	Jun-29-17 08:00	Jun-29-17 08:00	Jun-30-17 08:00	Jun-30-17 08:00	Jun-30-17 08:00	Jun-30-17 08:00
	<i>Analyzed:</i>	Jun-29-17 19:28	Jun-29-17 19:49	Jun-30-17 12:18	Jun-30-17 13:23	Jun-30-17 13:53	Jun-30-17 14:14
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	C6-C10 Gasoline Range Hydrocarbons	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
C10-C28 Diesel Range Organics	46.8 15.0	42.2 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
C28-C35 Oil Range Hydrocarbons	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Total TPH	46.8 15.0	42.2 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	

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

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

Version: 1.9%

Kelsey Brooks
Project Manager

Analytical Report 556359

for
COG Operating LLC

Project Manager: Aaron Lieb

Salvador Fee #4H

06-JUL-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)



06-JUL-17

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

Reference: XENCO Report No(s): **556359**
Salvador Fee #4H
Project Address:

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) 556359. 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. 556359 will be filed for 60 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

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

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Sample Cross Reference 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1-Surface	S	06-21-17 09:30		556359-001
T1-1'	S	06-21-17 09:30	- 1 ft	556359-002
T1-2'	S	06-21-17 09:30	- 2 ft	556359-003
T1-3'	S	06-21-17 09:30	- 3 ft	556359-004
T1-4'	S	06-21-17 09:30	- 4 ft	556359-005
T1-7'	S	06-21-17 09:30	- 7 ft	556359-006
T1-10'	S	06-21-17 09:30	- 10 ft	556359-007
T2-Surface	S	06-21-17 10:00		556359-008
T2-1'	S	06-21-17 10:00	- 1 ft	556359-009
T2-2'	S	06-21-17 10:00	- 2 ft	556359-010
T2-7'	S	06-21-17 10:00	- 7 ft	556359-011
T2-12'	S	06-21-17 10:00	- 12 ft	556359-012



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Salvador Fee #4H

Project ID:
Work Order Number(s): 556359

Report Date: 06-JUL-17
Date Received: 06/27/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3021191 BTEX by EPA 8021B

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

Batch: LBA-3021299 BTEX by EPA 8021B

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

Batch: LBA-3021391 BTEX by EPA 8021B

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

Batch: LBA-3021392 BTEX by EPA 8021B

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

Batch: LBA-3021493 BTEX by EPA 8021B

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



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T1-Surface**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556359-001

Date Collected: 06.21.17 09.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.03.17 14.00

Basis: Wet Weight

Seq Number: 3021455

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.3	4.98	mg/kg	07.03.17 15.01		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.29.17 08.00

Basis: Wet Weight

Seq Number: 3021359

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 17.19	U	1
C10-C28 Diesel Range Organics	C10C28DRO	1350	15.0	mg/kg	06.29.17 17.19		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	189	15.0	mg/kg	06.29.17 17.19		1
Total TPH	PHC635	1540	15.0	mg/kg	06.29.17 17.19		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	06.29.17 17.19	
o-Terphenyl	84-15-1	105	%	70-135	06.29.17 17.19	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T1-Surface**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556359-001

Date Collected: 06.21.17 09.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00344	0.00344	mg/kg	07.03.17 14.40	U	1
Toluene	108-88-3	<0.00344	0.00344	mg/kg	07.03.17 14.40	U	1
Ethylbenzene	100-41-4	<0.00344	0.00344	mg/kg	07.03.17 14.40	U	1
m_p-Xylenes	179601-23-1	<0.00687	0.00687	mg/kg	07.03.17 14.40	U	1
o-Xylene	95-47-6	<0.00344	0.00344	mg/kg	07.03.17 14.40	U	1
Total Xylenes	1330-20-7	<0.00344	0.00344	mg/kg	07.03.17 14.40	U	1
Total BTEX		<0.00344	0.00344	mg/kg	07.03.17 14.40	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	80-120	07.03.17 14.40		
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.03.17 14.40		

COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T1-1'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-002	Date Collected: 06.21.17 09.30	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.0	4.97	mg/kg	07.03.17 15.24		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.29.17 08.00
Seq Number: 3021359	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 17.41	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.29.17 17.41	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.29.17 17.41	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.29.17 17.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	06.29.17 17.41	
o-Terphenyl	84-15-1	105	%	70-135	06.29.17 17.41	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T1-1'**
 Lab Sample Id: 556359-002

Matrix: Soil
 Date Collected: 06.21.17 09.30

Date Received: 06.27.17 10.15
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00338	0.00338	mg/kg	07.03.17 14.56	U	1
Toluene	108-88-3	<0.00338	0.00338	mg/kg	07.03.17 14.56	U	1
Ethylbenzene	100-41-4	<0.00338	0.00338	mg/kg	07.03.17 14.56	U	1
m_p-Xylenes	179601-23-1	<0.00676	0.00676	mg/kg	07.03.17 14.56	U	1
o-Xylene	95-47-6	<0.00338	0.00338	mg/kg	07.03.17 14.56	U	1
Total Xylenes	1330-20-7	<0.00338	0.00338	mg/kg	07.03.17 14.56	U	1
Total BTEX		<0.00338	0.00338	mg/kg	07.03.17 14.56	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89		%	80-120	07.03.17 14.56	
1,4-Difluorobenzene	540-36-3	88		%	80-120	07.03.17 14.56	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T1-2'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-003	Date Collected: 06.21.17 09.30	Sample Depth: 2 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.8	5.00	mg/kg	07.03.17 15.32		1

Analytical Method: TPH By SW8015 Mod		Prep Method: TX1005P
Tech: ARM		% Moisture:
Analyst: ARM	Date Prep: 06.29.17 08.00	Basis: Wet Weight
Seq Number: 3021359		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 18.02	U	1
C10-C28 Diesel Range Organics	C10C28DRO	55.6	15.0	mg/kg	06.29.17 18.02		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.29.17 18.02	U	1
Total TPH	PHC635	55.6	15.0	mg/kg	06.29.17 18.02		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	06.29.17 18.02	
o-Terphenyl	84-15-1	109	%	70-135	06.29.17 18.02	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T1-2'**
 Lab Sample Id: 556359-003

Matrix: Soil
 Date Collected: 06.21.17 09.30

Date Received: 06.27.17 10.15
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.30.17 08.00

Basis: Wet Weight

Seq Number: 3021299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.30.17 11.57	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.30.17 11.57	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.30.17 11.57	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.30.17 11.57	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.30.17 11.57	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.30.17 11.57	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.30.17 11.57	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	86		%	80-120	06.30.17 11.57	
4-Bromofluorobenzene	460-00-4	112		%	80-120	06.30.17 11.57	

COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T1-3'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-004	Date Collected: 06.21.17 09.30	Sample Depth: 3 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.6	4.99	mg/kg	07.03.17 15.39		1

Analytical Method: TPH By SW8015 Mod		Prep Method: TX1005P
Tech: ARM		% Moisture:
Analyst: ARM	Date Prep: 06.29.17 08.00	Basis: Wet Weight
Seq Number: 3021359		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 18.23	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.29.17 18.23	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.29.17 18.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.29.17 18.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	06.29.17 18.23	
o-Terphenyl	84-15-1	111	%	70-135	06.29.17 18.23	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T1-3'**
 Lab Sample Id: 556359-004

Matrix: Soil
 Date Collected: 06.21.17 09.30

Date Received: 06.27.17 10.15
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.01.17 07.50

Basis: Wet Weight

Seq Number: 3021392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.01.17 16.32	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.01.17 16.32	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.01.17 16.32	U	1
m_p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.01.17 16.32	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.01.17 16.32	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.01.17 16.32	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.01.17 16.32	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	88	%	80-120	07.01.17 16.32		
1,4-Difluorobenzene	540-36-3	107	%	80-120	07.01.17 16.32		

COG Operating LLC, Artesia, NM Salvador Fee #4H

Sample Id: T1-4'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-005	Date Collected: 06.21.17 09.30	Sample Depth: 4 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.27	4.98	mg/kg	07.03.17 15.47		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.29.17 08.00
Seq Number: 3021359	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 18.45	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.29.17 18.45	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.29.17 18.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.29.17 18.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	06.29.17 18.45	
o-Terphenyl	84-15-1	108	%	70-135	06.29.17 18.45	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T1-4'**
 Lab Sample Id: 556359-005

Matrix: Soil
 Date Collected: 06.21.17 09.30

Date Received: 06.27.17 10.15
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.29.17 17.15

Basis: Wet Weight

Seq Number: 3021191

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.29.17 23.06	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.29.17 23.06	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.29.17 23.06	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.29.17 23.06	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.29.17 23.06	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.29.17 23.06	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.29.17 23.06	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	80-120	06.29.17 23.06		
1,4-Difluorobenzene	540-36-3	94	%	80-120	06.29.17 23.06		



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T1-7'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-006	Date Collected: 06.21.17 09.30	Sample Depth: 7 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.69	4.96	mg/kg	07.03.17 16.10		1

Analytical Method: TPH By SW8015 Mod		Prep Method: TX1005P
Tech: ARM		% Moisture:
Analyst: ARM	Date Prep: 06.29.17 08.00	Basis: Wet Weight
Seq Number: 3021359		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 19.06	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.29.17 19.06	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.29.17 19.06	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.29.17 19.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	06.29.17 19.06	
o-Terphenyl	84-15-1	110	%	70-135	06.29.17 19.06	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T1-7'**
 Lab Sample Id: 556359-006

Matrix: Soil
 Date Collected: 06.21.17 09.30

Date Received: 06.27.17 10.15
 Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00353	0.00353	mg/kg	07.03.17 15.32	U	1
Toluene	108-88-3	<0.00353	0.00353	mg/kg	07.03.17 15.32	U	1
Ethylbenzene	100-41-4	<0.00353	0.00353	mg/kg	07.03.17 15.32	U	1
m_p-Xylenes	179601-23-1	<0.00707	0.00707	mg/kg	07.03.17 15.32	U	1
o-Xylene	95-47-6	<0.00353	0.00353	mg/kg	07.03.17 15.32	U	1
Total Xylenes	1330-20-7	<0.00353	0.00353	mg/kg	07.03.17 15.32	U	1
Total BTEX		<0.00353	0.00353	mg/kg	07.03.17 15.32	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	80-120	07.03.17 15.32		
1,4-Difluorobenzene	540-36-3	91	%	80-120	07.03.17 15.32		



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T1-10'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-007	Date Collected: 06.21.17 09.30	Sample Depth: 10 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8.90	4.99	mg/kg	07.03.17 16.17		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.29.17 08.00
Seq Number: 3021359	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 19.28	U	1
C10-C28 Diesel Range Organics	C10C28DRO	46.8	15.0	mg/kg	06.29.17 19.28		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.29.17 19.28	U	1
Total TPH	PHC635	46.8	15.0	mg/kg	06.29.17 19.28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	06.29.17 19.28	
o-Terphenyl	84-15-1	107	%	70-135	06.29.17 19.28	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T1-10'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-007	Date Collected: 06.21.17 09.30	Sample Depth: 10 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: ALJ		% Moisture:
Analyst: ALJ	Date Prep: 06.29.17 17.15	Basis: Wet Weight
Seq Number: 3021191		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.29.17 23.39	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.29.17 23.39	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.29.17 23.39	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	06.29.17 23.39	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.29.17 23.39	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.29.17 23.39	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.29.17 23.39	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	83	%	80-120	06.29.17 23.39		
4-Bromofluorobenzene	460-00-4	103	%	80-120	06.29.17 23.39		



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T2-Surface**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556359-008

Date Collected: 06.21.17 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.03.17 14.00

Basis: Wet Weight

Seq Number: 3021455

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	07.03.17 16.25	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.29.17 08.00

Basis: Wet Weight

Seq Number: 3021359

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.29.17 19.49	U	1
C10-C28 Diesel Range Organics	C10C28DRO	42.2	15.0	mg/kg	06.29.17 19.49		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.29.17 19.49	U	1
Total TPH	PHC635	42.2	15.0	mg/kg	06.29.17 19.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	06.29.17 19.49	
o-Terphenyl	84-15-1	110	%	70-135	06.29.17 19.49	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **T2-Surface**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556359-008

Date Collected: 06.21.17 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.29.17 17.15

Basis: Wet Weight

Seq Number: 3021191

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.29.17 23.55	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.29.17 23.55	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.29.17 23.55	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.29.17 23.55	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.29.17 23.55	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.29.17 23.55	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.29.17 23.55	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	86		%	80-120	06.29.17 23.55	
4-Bromofluorobenzene	460-00-4	105		%	80-120	06.29.17 23.55	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-1'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-009	Date Collected: 06.21.17 10.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.01	4.99	mg/kg	07.03.17 16.32		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 12.18	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 12.18	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 12.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 12.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-135	06.30.17 12.18	
o-Terphenyl	84-15-1	129	%	70-135	06.30.17 12.18	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-1'
 Lab Sample Id: 556359-009

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00358	0.00358	mg/kg	07.03.17 16.04	U	1
Toluene	108-88-3	<0.00358	0.00358	mg/kg	07.03.17 16.04	U	1
Ethylbenzene	100-41-4	<0.00358	0.00358	mg/kg	07.03.17 16.04	U	1
m_p-Xylenes	179601-23-1	<0.00717	0.00717	mg/kg	07.03.17 16.04	U	1
o-Xylene	95-47-6	<0.00358	0.00358	mg/kg	07.03.17 16.04	U	1
Total Xylenes	1330-20-7	<0.00358	0.00358	mg/kg	07.03.17 16.04	U	1
Total BTEX		<0.00358	0.00358	mg/kg	07.03.17 16.04	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99		%	80-120	07.03.17 16.04	
1,4-Difluorobenzene	540-36-3	90		%	80-120	07.03.17 16.04	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-2'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-010	Date Collected: 06.21.17 10.00	Sample Depth: 2 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.69	5.00	mg/kg	07.03.17 16.40		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 13.23	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 13.23	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 13.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 13.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	06.30.17 13.23	
o-Terphenyl	84-15-1	111	%	70-135	06.30.17 13.23	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-2'
 Lab Sample Id: 556359-010

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.01.17 07.50

Basis: Wet Weight

Seq Number: 3021392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.01.17 17.21	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.01.17 17.21	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.01.17 17.21	U	1
m_p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.01.17 17.21	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.01.17 17.21	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.01.17 17.21	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.01.17 17.21	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	89		%	80-120	07.01.17 17.21	
4-Bromofluorobenzene	460-00-4	114		%	80-120	07.01.17 17.21	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-7'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-011	Date Collected: 06.21.17 10.00	Sample Depth: 7 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.16	4.96	mg/kg	07.03.17 16.48		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 13.53	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 13.53	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 13.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 13.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	06.30.17 13.53	
o-Terphenyl	84-15-1	95	%	70-135	06.30.17 13.53	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-7'
 Lab Sample Id: 556359-011

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15
 Sample Depth: 7 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.01.17 07.50

Basis: Wet Weight

Seq Number: 3021392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.01.17 17.37	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.01.17 17.37	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.01.17 17.37	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.01.17 17.37	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.01.17 17.37	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.01.17 17.37	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.01.17 17.37	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	118		%	80-120	07.01.17 17.37	
4-Bromofluorobenzene	460-00-4	102		%	80-120	07.01.17 17.37	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-12'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-012	Date Collected: 06.21.17 10.00	Sample Depth: 12 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.25	5.00	mg/kg	07.03.17 17.10		1

Analytical Method: TPH By SW8015 Mod		Prep Method: TX1005P
Tech: ARM		% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00	Basis: Wet Weight
Seq Number: 3021374		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 14.14	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 14.14	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 14.14	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 14.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	06.30.17 14.14	
o-Terphenyl	84-15-1	112	%	70-135	06.30.17 14.14	



Certificate of Analytical Results 556359



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: T2-12'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556359-012	Date Collected: 06.21.17 10.00	Sample Depth: 12 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: ALJ		% Moisture:
Analyst: ALJ	Date Prep: 06.30.17 17.30	Basis: Wet Weight
Seq Number: 3021391		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.01.17 12.28	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.01.17 12.28	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.01.17 12.28	U	1
m_p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.01.17 12.28	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.01.17 12.28	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.01.17 12.28	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.01.17 12.28	U	1
		%					
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	88	%	80-120	07.01.17 12.28		
1,4-Difluorobenzene	540-36-3	104	%	80-120	07.01.17 12.28		

- 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

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(602) 437-0330	



QC Summary 556359

COG Operating LLC

Salvador Fee #4H

Analytical Method: Chloride by EPA 300

Seq Number: 3021455

MB Sample Id: 727150-1-BLK

Matrix: Solid

LCS Sample Id: 727150-1-BKS

Prep Method: E300P

Date Prep: 07.03.17

LCSD Sample Id: 727150-1-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	230	92	227	91	90-110	1	20	mg/kg	07.03.17 14:31	

Analytical Method: Chloride by EPA 300

Seq Number: 3021455

Parent Sample Id: 556359-001

Matrix: Soil

MS Sample Id: 556359-001 S

Prep Method: E300P

Date Prep: 07.03.17

MSD Sample Id: 556359-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	34.3	249	272	95	267	93	90-110	2	20	mg/kg	07.03.17 15:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3021455

Parent Sample Id: 556359-011

Matrix: Soil

MS Sample Id: 556359-011 S

Prep Method: E300P

Date Prep: 07.03.17

MSD Sample Id: 556359-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.16	248	246	97	250	98	90-110	2	20	mg/kg	07.03.17 16:55	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3021359

MB Sample Id: 727082-1-BLK

Matrix: Solid

LCS Sample Id: 727082-1-BKS

Prep Method: TX1005P

Date Prep: 06.29.17

LCSD Sample Id: 727082-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1030	103	1000	100	70-135	3	35	mg/kg	06.29.17 10:44	
C10-C28 Diesel Range Organics	<15.0	1000	1050	105	993	99	70-135	6	35	mg/kg	06.29.17 10:44	

Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		108		106		70-135	%	06.29.17 10:44
o-Terphenyl	109		109		106		70-135	%	06.29.17 10:44



COG Operating LLC

Salvador Fee #4H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3021374

MB Sample Id: 727083-1-BLK

Matrix: Solid

LCS Sample Id: 727083-1-BKS

Prep Method: TX1005P

Date Prep: 06.30.17

LCSD Sample Id: 727083-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1100	110	1080	108	70-135	2	35	mg/kg	06.30.17 10:31	
C10-C28 Diesel Range Organics	<15.0	1000	1020	102	1010	101	70-135	1	35	mg/kg	06.30.17 10:31	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		117		117		70-135	%	06.30.17 10:31
o-Terphenyl	112		118		116		70-135	%	06.30.17 10:31

Analytical Method: TPH By SW8015 Mod

Seq Number: 3021359

Parent Sample Id: 556358-001

Matrix: Soil

MS Sample Id: 556358-001 S

Prep Method: TX1005P

Date Prep: 06.29.17

MSD Sample Id: 556358-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	1410	997	2820	141	2860	145	70-135	1	35	mg/kg	06.29.17 11:48	X
C10-C28 Diesel Range Organics	1820	997	2590	77	2780	96	70-135	7	35	mg/kg	06.29.17 11:48	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		121		70-135	%	06.29.17 11:48
o-Terphenyl	91		109		70-135	%	06.29.17 11:48

Analytical Method: TPH By SW8015 Mod

Seq Number: 3021374

Parent Sample Id: 556359-009

Matrix: Soil

MS Sample Id: 556359-009 S

Prep Method: TX1005P

Date Prep: 06.30.17

MSD Sample Id: 556359-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	999	1030	103	1060	106	70-135	3	35	mg/kg	06.30.17 12:38	
C10-C28 Diesel Range Organics	<15.0	999	1040	104	1060	106	70-135	2	35	mg/kg	06.30.17 12:38	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		111		70-135	%	06.30.17 12:38
o-Terphenyl	109		109		70-135	%	06.30.17 12:38



COG Operating LLC

Salvador Fee #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021191

MB Sample Id: 727003-1-BLK

Matrix: Solid

LCS Sample Id: 727003-1-BKS

Prep Method: SW5030B

Date Prep: 06.29.17

LCSD Sample Id: 727003-1-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	0.0974	98	70-130	7	35	mg/kg	06.29.17 20:57	
Toluene	<0.00200	0.100	0.0925	93	0.0861	86	70-130	7	35	mg/kg	06.29.17 20:57	
Ethylbenzene	<0.00200	0.100	0.0991	99	0.0931	93	71-129	6	35	mg/kg	06.29.17 20:57	
m,p-Xylenes	<0.00401	0.200	0.180	90	0.167	84	70-135	7	35	mg/kg	06.29.17 20:57	
o-Xylene	<0.00200	0.100	0.106	106	0.0933	93	71-133	13	35	mg/kg	06.29.17 20:57	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		109		99		80-120	%	06.29.17 20:57
4-Bromofluorobenzene	98		102		100		80-120	%	06.29.17 20:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021299

MB Sample Id: 727062-1-BLK

Matrix: Solid

LCS Sample Id: 727062-1-BKS

Prep Method: SW5030B

Date Prep: 06.30.17

LCSD Sample Id: 727062-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0979	98	0.102	103	70-130	4	35	mg/kg	06.30.17 08:59	
Toluene	<0.00199	0.0996	0.0902	91	0.0932	94	70-130	3	35	mg/kg	06.30.17 08:59	
Ethylbenzene	<0.00199	0.0996	0.0958	96	0.104	105	71-129	8	35	mg/kg	06.30.17 08:59	
m_p-Xylenes	<0.00398	0.199	0.168	84	0.182	92	70-135	8	35	mg/kg	06.30.17 08:59	
o-Xylene	<0.00199	0.0996	0.0895	90	0.0941	95	71-133	5	35	mg/kg	06.30.17 08:59	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		92		97		80-120	%	06.30.17 08:59
4-Bromofluorobenzene	108		106		100		80-120	%	06.30.17 08:59

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021391

MB Sample Id: 727129-1-BLK

Matrix: Solid

LCS Sample Id: 727129-1-BKS

Prep Method: SW5030B

Date Prep: 06.30.17

LCSD Sample Id: 727129-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0852	86	0.0832	83	70-130	2	35	mg/kg	07.01.17 03:00	
Toluene	<0.00199	0.0996	0.0808	81	0.0808	81	70-130	0	35	mg/kg	07.01.17 03:00	
Ethylbenzene	<0.00199	0.0996	0.0873	88	0.0891	89	71-129	2	35	mg/kg	07.01.17 03:00	
m_p-Xylenes	<0.00398	0.199	0.166	83	0.162	81	70-135	2	35	mg/kg	07.01.17 03:00	
o-Xylene	<0.00199	0.0996	0.0825	83	0.0897	90	71-133	8	35	mg/kg	07.01.17 03:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		90		96		80-120	%	07.01.17 03:00
4-Bromofluorobenzene	81		85		89		80-120	%	07.01.17 03:00



COG Operating LLC

Salvador Fee #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021392

MB Sample Id: 727130-1-BLK

Matrix: Solid

LCS Sample Id: 727130-1-BKS

Prep Method: SW5030B

Date Prep: 07.01.17

LCSD Sample Id: 727130-1-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	0.0891	89	0.0927	93	70-130	4	35	mg/kg	07.01.17 14:38	
Toluene	<0.00200	0.100	0.0840	84	0.0833	83	70-130	1	35	mg/kg	07.01.17 14:38	
Ethylbenzene	<0.00200	0.100	0.0878	88	0.0892	89	71-129	2	35	mg/kg	07.01.17 14:38	
m_p-Xylenes	<0.00401	0.200	0.158	79	0.159	79	70-135	1	35	mg/kg	07.01.17 14:38	
o-Xylene	<0.00200	0.100	0.0850	85	0.0883	88	71-133	4	35	mg/kg	07.01.17 14:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		98		110		80-120	%	07.01.17 14:38
4-Bromofluorobenzene	110		100		109		80-120	%	07.01.17 14:38

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021493

MB Sample Id: 727173-1-BLK

Matrix: Solid

LCS Sample Id: 727173-1-BKS

Prep Method: SW5030B

Date Prep: 07.03.17

LCSD Sample Id: 727173-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0894	90	0.0867	87	70-130	3	35	mg/kg	07.03.17 12:29	
Toluene	<0.00199	0.0996	0.0815	82	0.0774	77	70-130	5	35	mg/kg	07.03.17 12:29	
Ethylbenzene	<0.00199	0.0996	0.0922	93	0.0873	87	71-129	5	35	mg/kg	07.03.17 12:29	
m_p-Xylenes	<0.00398	0.199	0.155	78	0.153	77	70-135	1	35	mg/kg	07.03.17 12:29	
o-Xylene	<0.00199	0.0996	0.0911	91	0.0821	82	71-133	10	35	mg/kg	07.03.17 12:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		99		114		80-120	%	07.03.17 12:29
4-Bromofluorobenzene	103		104		94		80-120	%	07.03.17 12:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021191

Parent Sample Id: 556360-001

Matrix: Soil

MS Sample Id: 556360-001 S

Prep Method: SW5030B

Date Prep: 06.29.17

MSD Sample Id: 556360-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0915	91	0.0716	72	70-130	24	35	mg/kg	06.29.17 21:29	
Toluene	<0.00202	0.101	0.0791	78	0.0610	61	70-130	26	35	mg/kg	06.29.17 21:29	X
Ethylbenzene	<0.00202	0.101	0.0858	85	0.0741	74	71-129	15	35	mg/kg	06.29.17 21:29	
m,p-Xylenes	<0.00404	0.202	0.154	76	0.112	56	70-135	32	35	mg/kg	06.29.17 21:29	X
o-Xylene	<0.00202	0.101	0.0838	83	0.0638	64	71-133	27	35	mg/kg	06.29.17 21:29	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		104		80-120	%	06.29.17 21:29
4-Bromofluorobenzene	119		118		80-120	%	06.29.17 21:29



QC Summary 556359

COG Operating LLC

Salvador Fee #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021299

Parent Sample Id: 556361-001

Matrix: Soil

MS Sample Id: 556361-001 S

Prep Method: SW5030B

Date Prep: 06.30.17

MSD Sample Id: 556361-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0673	67	0.0370	37	70-130	58	35	mg/kg	06.30.17 09:31	XF
Toluene	<0.00200	0.0998	0.0572	57	0.0370	37	70-130	43	35	mg/kg	06.30.17 09:31	XF
Ethylbenzene	<0.00200	0.0998	0.0547	55	0.0287	29	71-129	62	35	mg/kg	06.30.17 09:31	XF
m_p-Xylenes	<0.00399	0.200	0.0938	47	0.0520	26	70-135	57	35	mg/kg	06.30.17 09:31	XF
o-Xylene	<0.00200	0.0998	0.0533	53	0.0325	33	71-133	48	35	mg/kg	06.30.17 09:31	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		89		80-120	%	06.30.17 09:31
4-Bromofluorobenzene	90		87		80-120	%	06.30.17 09:31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021391

Parent Sample Id: 556362-001

Matrix: Soil

MS Sample Id: 556362-001 S

Prep Method: SW5030B

Date Prep: 06.30.17

MSD Sample Id: 556362-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0779	78	0.0706	70	70-130	10	35	mg/kg	07.01.17 03:32	
Toluene	<0.00199	0.0996	0.0789	79	0.0689	68	70-130	14	35	mg/kg	07.01.17 03:32	X
Ethylbenzene	<0.00199	0.0996	0.0784	79	0.0662	66	71-129	17	35	mg/kg	07.01.17 03:32	X
m_p-Xylenes	<0.00398	0.199	0.145	73	0.136	67	70-135	6	35	mg/kg	07.01.17 03:32	X
o-Xylene	<0.00199	0.0996	0.0809	81	0.0675	67	71-133	18	35	mg/kg	07.01.17 03:32	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		118		80-120	%	07.01.17 03:32
4-Bromofluorobenzene	120		120		80-120	%	07.01.17 03:32

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021392

Parent Sample Id: 556518-002

Matrix: Soil

MS Sample Id: 556518-002 S

Prep Method: SW5030B

Date Prep: 07.01.17

MSD Sample Id: 556518-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0822	81	0.0828	82	70-130	1	35	mg/kg	07.01.17 15:11	
Toluene	<0.00202	0.101	0.0793	79	0.0772	76	70-130	3	35	mg/kg	07.01.17 15:11	
Ethylbenzene	<0.00202	0.101	0.0699	69	0.0700	69	71-129	0	35	mg/kg	07.01.17 15:11	X
m_p-Xylenes	<0.00405	0.202	0.125	62	0.119	59	70-135	5	35	mg/kg	07.01.17 15:11	X
o-Xylene	<0.00202	0.101	0.0715	71	0.0802	79	71-133	11	35	mg/kg	07.01.17 15:11	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	119		120		80-120	%	07.01.17 15:11
4-Bromofluorobenzene	118		118		80-120	%	07.01.17 15:11



QC Summary 556359

COG Operating LLC

Salvador Fee #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021493

Parent Sample Id: 556711-008

Matrix: Soil

MS Sample Id: 556711-008 S

Prep Method: SW5030B

Date Prep: 07.03.17

MSD Sample Id: 556711-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00351	0.175	0.139	79	0.167	97	70-130	18	35	mg/kg	07.03.17 13:02	
Toluene	0.00770	0.175	0.122	65	0.168	93	70-130	32	35	mg/kg	07.03.17 13:02	X
Ethylbenzene	0.0188	0.175	0.151	76	0.189	99	71-129	22	35	mg/kg	07.03.17 13:02	
m_p-Xylenes	0.192	0.351	0.520	93	0.411	63	70-135	23	35	mg/kg	07.03.17 13:02	X
o-Xylene	0.0835	0.175	0.287	116	0.180	56	71-133	46	35	mg/kg	07.03.17 13:02	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		111		80-120	%	07.03.17 13:02
4-Bromofluorobenzene	107		118		80-120	%	07.03.17 13:02



Setting the Standard since 1990
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Page 2 of 2

San Antonio, Texas (210-509-3344)
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Xenco Quote #

Xenco Job #

5542559

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

Project Information

Client / Reporting Information

Company Name / Branch: **COG Operating LLC**

Company Address: **2407 PECOS Avenue Artesia NM 88210**

Project Name/Number: **Salvador fee #4H**

Project Location: **Salvador fee #4H**

Invoice To: **COG Operating LLC**
 Attn: Robert McNeill
 600 W. Illinois
 Midland TX 79701

Phone No: 575-748-1553

Email: alieb@concho.com dineez@concho.com haskell@concho.com

Project Contact: **Aaron Lieb**

Sampler's Name: **Aaron Lieb**

PO Number:

Analytical Information

TPH

BTEX

Chloride

Field Comments

No.	Field ID / Point of Collection	Collection			# of bottles	Number of preserved bottles							TPH	BTEX	Chloride	Notes:		
		Sample Depth	Date	Time		Matrix	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4					MEOH	NONE
1	TR- SURF	Surf	6/21/17	10:07 AM	S	1												
2	TR- 1'	1'				1												
3	TR- 2'	2'				1												
4	TR- 7'	7'				1												
5	TR- 12'	12'				1												
6																		
7																		
8																		
9																		
10																		

Temp: 10.3 IR ID: R-8

CF: (0-6; -0.2°C)

Corrected Temp: 10.1 (6-23; +0.2°C)

FED-EX / UPS: tracking #

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

Reinquinshed by Sampler: **1 Aaron Lieb** Date Time: **6/21/17 10:07 AM** Received By: **1 Aaron Lieb** Date Time: **6/21/17 11:45 AM**

Reinquinshed by: **3 Aaron Lieb** Date Time: **6/21/17 10:07 AM** Received By: **3 Aaron Lieb** Date Time: **6/21/17 11:45 AM**

Reinquinshed by: **5 Aaron Lieb** Date Time: **6/21/17 10:07 AM** Received By: **5 Aaron Lieb** Date Time: **6/21/17 11:45 AM**

On Ice Cooler Temp: **26.2** 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 losses 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: 06/27/2017 10:15:00 AM

Work Order #: 556359

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	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)?	N/A
#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: Jessica Kramer

 Jessica Kramer

Date: 06/27/2017

Checklist reviewed by: Kelsey Brooks

 Kelsey Brooks

Date: 06/27/2017



Certificate of Analysis Summary 556360

COG Operating LLC, Artesia, NM

Project Name: Salvador Fee #4H



Project Id:
Contact: Aaron Lieb
Project Location:

Date Received in Lab: Tue Jun-27-17 10:15 am
Report Date: 06-JUL-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	556360-001	556360-002	556360-003	556360-004	556360-005	556360-006
	<i>Field Id:</i>	North - Surf	North - 1'	South - Surf	South - 1'	East - Surf	East - 1'
	<i>Depth:</i>		1 ft		1 ft		1 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jun-21-17 10:00	Jun-21-17 10:00	Jun-21-17 10:00	Jun-21-17 10:00	Jun-21-17 10:00	Jun-21-17 10:00
BTEX by EPA 8021B	<i>Extracted:</i>	Jun-29-17 17:15	Jun-30-17 08:00	Jul-03-17 12:00	Jul-03-17 12:00	Jul-03-17 12:00	Jun-30-17 17:30
	<i>Analyzed:</i>	Jun-29-17 22:34	Jun-30-17 12:14	Jul-03-17 14:24	Jul-03-17 15:15	Jul-03-17 16:20	Jul-01-17 13:33
	<i>Units/RL:</i>	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	<0.00351 0.00351	<0.00364 0.00364	<0.00361 0.00361	<0.00201 0.00201
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00351 0.00351	<0.00364 0.00364	<0.00361 0.00361	<0.00201 0.00201
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00351 0.00351	<0.00364 0.00364	<0.00361 0.00361	<0.00201 0.00201
m,p-Xylenes		<0.00399 0.00399	<0.00398 0.00398	<0.00702 0.00702	<0.00727 0.00727	<0.00722 0.00722	<0.00402 0.00402
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00351 0.00351	<0.00364 0.00364	<0.00361 0.00361	<0.00201 0.00201
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00351 0.00351	<0.00364 0.00364	<0.00361 0.00361	<0.00201 0.00201
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00351 0.00351	<0.00364 0.00364	<0.00361 0.00361	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00	Jul-03-17 14:00
	<i>Analyzed:</i>	Jul-03-17 17:18	Jul-03-17 17:41	Jul-03-17 17:48	Jul-03-17 17:56	Jul-03-17 18:04	Jul-03-17 18:11
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.99 4.99	<5.00 5.00	34.5 4.96	29.1 4.99	<4.96 4.96	7.38 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Jun-30-17 08:00	Jun-30-17 08:00	Jun-30-17 08:00	Jun-30-17 08:00	Jun-30-17 08:00	Jun-30-17 08:00
	<i>Analyzed:</i>	Jun-30-17 14:36	Jun-30-17 14:57	Jun-30-17 15:22	Jun-30-17 15:48	Jun-30-17 16:13	Jun-30-17 16:38
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
C10-C28 Diesel Range Organics		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
C28-C35 Oil Range Hydrocarbons		<15.0 15.0	<15.0 15.0	<15.0 15.0	<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	<15.0 15.0	<15.0 15.0	<15.0 15.0

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

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

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 556360

COG Operating LLC, Artesia, NM

Project Name: Salvador Fee #4H



Project Id:
Contact: Aaron Lieb
Project Location:

Date Received in Lab: Tue Jun-27-17 10:15 am
Report Date: 06-JUL-17
Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	556360-007	556360-008			
	<i>Field Id:</i>	West - Surf	West - 1'			
	<i>Depth:</i>		1 ft			
	<i>Matrix:</i>	SOIL	SOIL			
	<i>Sampled:</i>	Jun-21-17 10:00	Jun-21-17 10:00			
BTEX by EPA 8021B	<i>Extracted:</i>	Jul-03-17 12:00	Jun-30-17 17:30			
	<i>Analyzed:</i>	Jul-03-17 15:47	Jul-01-17 13:01			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			
Benzene		<0.00356 0.00356	<0.00199 0.00199			
Toluene		<0.00356 0.00356	<0.00199 0.00199			
Ethylbenzene		<0.00356 0.00356	<0.00199 0.00199			
m_p-Xylenes		<0.00712 0.00712	<0.00398 0.00398			
o-Xylene		<0.00356 0.00356	<0.00199 0.00199			
Total Xylenes		<0.00356 0.00356	<0.00199 0.00199			
Total BTEX		<0.00356 0.00356	<0.00199 0.00199			
Chloride by EPA 300	<i>Extracted:</i>	Jul-03-17 14:00	Jul-03-17 14:00			
	<i>Analyzed:</i>	Jul-03-17 18:19	Jul-03-17 18:26			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			
Chloride		18.9 4.96	<4.96 4.96			
TPH By SW8015 Mod	<i>Extracted:</i>	Jun-30-17 08:00	Jun-30-17 08:00			
	<i>Analyzed:</i>	Jun-30-17 17:43	Jun-30-17 18:06			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL			
C6-C10 Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0			
C10-C28 Diesel Range Organics		<15.0 15.0	<15.0 15.0			
C28-C35 Oil Range Hydrocarbons		<15.0 15.0	<15.0 15.0			
Total TPH		<15.0 15.0	<15.0 15.0			

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

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Kelsey Brooks
 Project Manager

Analytical Report 556360

for
COG Operating LLC

Project Manager: Aaron Lieb

Salvador Fee #4H

06-JUL-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)



06-JUL-17

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

Reference: XENCO Report No(s): **556360**
Salvador Fee #4H
Project Address:

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) 556360. 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. 556360 will be filed for 60 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

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

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Sample Cross Reference 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North - Surf	S	06-21-17 10:00		556360-001
North - 1'	S	06-21-17 10:00	- 1 ft	556360-002
South - Surf	S	06-21-17 10:00		556360-003
South - 1'	S	06-21-17 10:00	- 1 ft	556360-004
East - Surf	S	06-21-17 10:00		556360-005
East - 1'	S	06-21-17 10:00	- 1 ft	556360-006
West - Surf	S	06-21-17 10:00		556360-007
West - 1'	S	06-21-17 10:00	- 1 ft	556360-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Salvador Fee #4H

Project ID:
Work Order Number(s): 556360

Report Date: 06-JUL-17
Date Received: 06/27/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3021191 BTEX by EPA 8021B

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

Lab Sample ID 556360-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 556360-001.

The Laboratory Control Sample for Toluene, m,p-Xylenes, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3021299 BTEX by EPA 8021B

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

Batch: LBA-3021391 BTEX by EPA 8021B

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

Batch: LBA-3021493 BTEX by EPA 8021B

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



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **North - Surf**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556360-001

Date Collected: 06.21.17 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.03.17 14.00

Basis: Wet Weight

Seq Number: 3021455

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	07.03.17 17.18	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.30.17 08.00

Basis: Wet Weight

Seq Number: 3021374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 14.36	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 14.36	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 14.36	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 14.36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	06.30.17 14.36	
o-Terphenyl	84-15-1	97	%	70-135	06.30.17 14.36	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **North - Surf**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556360-001

Date Collected: 06.21.17 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.29.17 17.15

Basis: Wet Weight

Seq Number: 3021191

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.29.17 22.34	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.29.17 22.34	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.29.17 22.34	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.29.17 22.34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.29.17 22.34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.29.17 22.34	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.29.17 22.34	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	90	%	80-120	06.29.17 22.34		
4-Bromofluorobenzene	460-00-4	101	%	80-120	06.29.17 22.34		



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: North - 1'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556360-002	Date Collected: 06.21.17 10.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	07.03.17 17.41	U	1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 14.57	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 14.57	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 14.57	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 14.57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	06.30.17 14.57	
o-Terphenyl	84-15-1	104	%	70-135	06.30.17 14.57	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **North - 1'**
 Lab Sample Id: 556360-002

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.30.17 08.00

Basis: Wet Weight

Seq Number: 3021299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.30.17 12.14	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.30.17 12.14	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.30.17 12.14	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.30.17 12.14	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.30.17 12.14	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.30.17 12.14	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.30.17 12.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	80-120	06.30.17 12.14		
1,4-Difluorobenzene	540-36-3	98	%	80-120	06.30.17 12.14		



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **South - Surf**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556360-003

Date Collected: 06.21.17 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.03.17 14.00

Basis: Wet Weight

Seq Number: 3021455

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.5	4.96	mg/kg	07.03.17 17.48		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.30.17 08.00

Basis: Wet Weight

Seq Number: 3021374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 15.22	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 15.22	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 15.22	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 15.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	06.30.17 15.22	
o-Terphenyl	84-15-1	111	%	70-135	06.30.17 15.22	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **South - Surf**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556360-003

Date Collected: 06.21.17 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00351	0.00351	mg/kg	07.03.17 14.24	U	1
Toluene	108-88-3	<0.00351	0.00351	mg/kg	07.03.17 14.24	U	1
Ethylbenzene	100-41-4	<0.00351	0.00351	mg/kg	07.03.17 14.24	U	1
m_p-Xylenes	179601-23-1	<0.00702	0.00702	mg/kg	07.03.17 14.24	U	1
o-Xylene	95-47-6	<0.00351	0.00351	mg/kg	07.03.17 14.24	U	1
Total Xylenes	1330-20-7	<0.00351	0.00351	mg/kg	07.03.17 14.24	U	1
Total BTEX		<0.00351	0.00351	mg/kg	07.03.17 14.24	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.03.17 14.24		
4-Bromofluorobenzene	460-00-4	95	%	80-120	07.03.17 14.24		



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: South - 1'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556360-004	Date Collected: 06.21.17 10.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.1	4.99	mg/kg	07.03.17 17.56		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 15.48	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 15.48	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 15.48	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 15.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	06.30.17 15.48	
o-Terphenyl	84-15-1	114	%	70-135	06.30.17 15.48	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **South - 1'**
 Lab Sample Id: 556360-004

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00364	0.00364	mg/kg	07.03.17 15.15	U	1
Toluene	108-88-3	<0.00364	0.00364	mg/kg	07.03.17 15.15	U	1
Ethylbenzene	100-41-4	<0.00364	0.00364	mg/kg	07.03.17 15.15	U	1
m_p-Xylenes	179601-23-1	<0.00727	0.00727	mg/kg	07.03.17 15.15	U	1
o-Xylene	95-47-6	<0.00364	0.00364	mg/kg	07.03.17 15.15	U	1
Total Xylenes	1330-20-7	<0.00364	0.00364	mg/kg	07.03.17 15.15	U	1
Total BTEX		<0.00364	0.00364	mg/kg	07.03.17 15.15	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	80-120	07.03.17 15.15		
1,4-Difluorobenzene	540-36-3	117	%	80-120	07.03.17 15.15		



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM Salvador Fee #4H

Sample Id: East - Surf	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556360-005	Date Collected: 06.21.17 10.00	
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	07.03.17 18.04	U	1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 16.13	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 16.13	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 16.13	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 16.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	06.30.17 16.13	
o-Terphenyl	84-15-1	113	%	70-135	06.30.17 16.13	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **East - Surf**
 Lab Sample Id: 556360-005

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00361	0.00361	mg/kg	07.03.17 16.20	U	1
Toluene	108-88-3	<0.00361	0.00361	mg/kg	07.03.17 16.20	U	1
Ethylbenzene	100-41-4	<0.00361	0.00361	mg/kg	07.03.17 16.20	U	1
m_p-Xylenes	179601-23-1	<0.00722	0.00722	mg/kg	07.03.17 16.20	U	1
o-Xylene	95-47-6	<0.00361	0.00361	mg/kg	07.03.17 16.20	U	1
Total Xylenes	1330-20-7	<0.00361	0.00361	mg/kg	07.03.17 16.20	U	1
Total BTEX		<0.00361	0.00361	mg/kg	07.03.17 16.20	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	80-120	07.03.17 16.20		
1,4-Difluorobenzene	540-36-3	99	%	80-120	07.03.17 16.20		

COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: East - 1'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556360-006	Date Collected: 06.21.17 10.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.38	5.00	mg/kg	07.03.17 18.11		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 16.38	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 16.38	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 16.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 16.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	06.30.17 16.38	
o-Terphenyl	84-15-1	126	%	70-135	06.30.17 16.38	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **East - 1'**
 Lab Sample Id: 556360-006

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.30.17 17.30

Basis: Wet Weight

Seq Number: 3021391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.01.17 13.33	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.01.17 13.33	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.01.17 13.33	U	1
m_p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.01.17 13.33	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.01.17 13.33	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.01.17 13.33	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.01.17 13.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	111	%	80-120	07.01.17 13.33		
1,4-Difluorobenzene	540-36-3	99	%	80-120	07.01.17 13.33		



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **West - Surf** Matrix: Soil Date Received: 06.27.17 10.15
 Lab Sample Id: 556360-007 Date Collected: 06.21.17 10.00

Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MGO % Moisture:
 Analyst: MGO Date Prep: 07.03.17 14.00 Basis: Wet Weight
 Seq Number: 3021455

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.9	4.96	mg/kg	07.03.17 18.19		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 06.30.17 08.00 Basis: Wet Weight
 Seq Number: 3021374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 17.43	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 17.43	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 17.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 17.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	06.30.17 17.43	
o-Terphenyl	84-15-1	112	%	70-135	06.30.17 17.43	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **West - Surf**

Matrix: Soil

Date Received: 06.27.17 10.15

Lab Sample Id: 556360-007

Date Collected: 06.21.17 10.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.03.17 12.00

Basis: Wet Weight

Seq Number: 3021493

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00356	0.00356	mg/kg	07.03.17 15.47	U	1
Toluene	108-88-3	<0.00356	0.00356	mg/kg	07.03.17 15.47	U	1
Ethylbenzene	100-41-4	<0.00356	0.00356	mg/kg	07.03.17 15.47	U	1
m_p-Xylenes	179601-23-1	<0.00712	0.00712	mg/kg	07.03.17 15.47	U	1
o-Xylene	95-47-6	<0.00356	0.00356	mg/kg	07.03.17 15.47	U	1
Total Xylenes	1330-20-7	<0.00356	0.00356	mg/kg	07.03.17 15.47	U	1
Total BTEX		<0.00356	0.00356	mg/kg	07.03.17 15.47	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95		%	80-120	07.03.17 15.47	
1,4-Difluorobenzene	540-36-3	111		%	80-120	07.03.17 15.47	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: West - 1'	Matrix: Soil	Date Received: 06.27.17 10.15
Lab Sample Id: 556360-008	Date Collected: 06.21.17 10.00	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: MGO		% Moisture:
Analyst: MGO	Date Prep: 07.03.17 14.00	Basis: Wet Weight
Seq Number: 3021455		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	07.03.17 18.26	U	1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 06.30.17 08.00
Seq Number: 3021374	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.30.17 18.06	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.30.17 18.06	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.30.17 18.06	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.30.17 18.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	06.30.17 18.06	
o-Terphenyl	84-15-1	107	%	70-135	06.30.17 18.06	



Certificate of Analytical Results 556360



COG Operating LLC, Artesia, NM

Salvador Fee #4H

Sample Id: **West - 1'**
 Lab Sample Id: 556360-008

Matrix: Soil
 Date Collected: 06.21.17 10.00

Date Received: 06.27.17 10.15
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.30.17 17.30

Basis: Wet Weight

Seq Number: 3021391

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.01.17 13.01	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.01.17 13.01	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.01.17 13.01	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.01.17 13.01	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.01.17 13.01	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.01.17 13.01	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.01.17 13.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	07.01.17 13.01		
1,4-Difluorobenzene	540-36-3	95	%	80-120	07.01.17 13.01		

- 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

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QC Summary 556360

COG Operating LLC

Salvador Fee #4H

Analytical Method: Chloride by EPA 300

Seq Number: 3021455

MB Sample Id: 727150-1-BLK

Matrix: Solid

LCS Sample Id: 727150-1-BKS

Prep Method: E300P

Date Prep: 07.03.17

LCSD Sample Id: 727150-1-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	230	92	227	91	90-110	1	20	mg/kg	07.03.17 14:31	

Analytical Method: Chloride by EPA 300

Seq Number: 3021455

Parent Sample Id: 556359-001

Matrix: Soil

MS Sample Id: 556359-001 S

Prep Method: E300P

Date Prep: 07.03.17

MSD Sample Id: 556359-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	34.3	249	272	95	267	93	90-110	2	20	mg/kg	07.03.17 15:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3021455

Parent Sample Id: 556359-011

Matrix: Soil

MS Sample Id: 556359-011 S

Prep Method: E300P

Date Prep: 07.03.17

MSD Sample Id: 556359-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.16	248	246	97	250	98	90-110	2	20	mg/kg	07.03.17 16:55	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3021374

MB Sample Id: 727083-1-BLK

Matrix: Solid

LCS Sample Id: 727083-1-BKS

Prep Method: TX1005P

Date Prep: 06.30.17

LCSD Sample Id: 727083-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1100	110	1080	108	70-135	2	35	mg/kg	06.30.17 10:31	
C10-C28 Diesel Range Organics	<15.0	1000	1020	102	1010	101	70-135	1	35	mg/kg	06.30.17 10:31	

Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		117		117		70-135	%	06.30.17 10:31
o-Terphenyl	112		118		116		70-135	%	06.30.17 10:31



COG Operating LLC

Salvador Fee #4H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3021374

Parent Sample Id: 556359-009

Matrix: Soil

MS Sample Id: 556359-009 S

Prep Method: TX1005P

Date Prep: 06.30.17

MSD Sample Id: 556359-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	999	1030	103	1060	106	70-135	3	35	mg/kg	06.30.17 12:38	
C10-C28 Diesel Range Organics	<15.0	999	1040	104	1060	106	70-135	2	35	mg/kg	06.30.17 12:38	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		111		70-135	%	06.30.17 12:38
o-Terphenyl	109		109		70-135	%	06.30.17 12:38

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021191

MB Sample Id: 727003-1-BLK

Matrix: Solid

LCS Sample Id: 727003-1-BKS

Prep Method: SW5030B

Date Prep: 06.29.17

LCSD Sample Id: 727003-1-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	0.0974	98	70-130	7	35	mg/kg	06.29.17 20:57	
Toluene	<0.00200	0.100	0.0925	93	0.0861	86	70-130	7	35	mg/kg	06.29.17 20:57	
Ethylbenzene	<0.00200	0.100	0.0991	99	0.0931	93	71-129	6	35	mg/kg	06.29.17 20:57	
m,p-Xylenes	<0.00401	0.200	0.180	90	0.167	84	70-135	7	35	mg/kg	06.29.17 20:57	
o-Xylene	<0.00200	0.100	0.106	106	0.0933	93	71-133	13	35	mg/kg	06.29.17 20:57	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		109		99		80-120	%	06.29.17 20:57
4-Bromofluorobenzene	98		102		100		80-120	%	06.29.17 20:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021299

MB Sample Id: 727062-1-BLK

Matrix: Solid

LCS Sample Id: 727062-1-BKS

Prep Method: SW5030B

Date Prep: 06.30.17

LCSD Sample Id: 727062-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0979	98	0.102	103	70-130	4	35	mg/kg	06.30.17 08:59	
Toluene	<0.00199	0.0996	0.0902	91	0.0932	94	70-130	3	35	mg/kg	06.30.17 08:59	
Ethylbenzene	<0.00199	0.0996	0.0958	96	0.104	105	71-129	8	35	mg/kg	06.30.17 08:59	
m_p-Xylenes	<0.00398	0.199	0.168	84	0.182	92	70-135	8	35	mg/kg	06.30.17 08:59	
o-Xylene	<0.00199	0.0996	0.0895	90	0.0941	95	71-133	5	35	mg/kg	06.30.17 08:59	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		92		97		80-120	%	06.30.17 08:59
4-Bromofluorobenzene	108		106		100		80-120	%	06.30.17 08:59



COG Operating LLC

Salvador Fee #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021391

MB Sample Id: 727129-1-BLK

Matrix: Solid

LCS Sample Id: 727129-1-BKS

Prep Method: SW5030B

Date Prep: 06.30.17

LCSD Sample Id: 727129-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0852	86	0.0832	83	70-130	2	35	mg/kg	07.01.17 03:00	
Toluene	<0.00199	0.0996	0.0808	81	0.0808	81	70-130	0	35	mg/kg	07.01.17 03:00	
Ethylbenzene	<0.00199	0.0996	0.0873	88	0.0891	89	71-129	2	35	mg/kg	07.01.17 03:00	
m_p-Xylenes	<0.00398	0.199	0.166	83	0.162	81	70-135	2	35	mg/kg	07.01.17 03:00	
o-Xylene	<0.00199	0.0996	0.0825	83	0.0897	90	71-133	8	35	mg/kg	07.01.17 03:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		90		96		80-120	%	07.01.17 03:00
4-Bromofluorobenzene	81		85		89		80-120	%	07.01.17 03:00

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021493

MB Sample Id: 727173-1-BLK

Matrix: Solid

LCS Sample Id: 727173-1-BKS

Prep Method: SW5030B

Date Prep: 07.03.17

LCSD Sample Id: 727173-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0894	90	0.0867	87	70-130	3	35	mg/kg	07.03.17 12:29	
Toluene	<0.00199	0.0996	0.0815	82	0.0774	77	70-130	5	35	mg/kg	07.03.17 12:29	
Ethylbenzene	<0.00199	0.0996	0.0922	93	0.0873	87	71-129	5	35	mg/kg	07.03.17 12:29	
m_p-Xylenes	<0.00398	0.199	0.155	78	0.153	77	70-135	1	35	mg/kg	07.03.17 12:29	
o-Xylene	<0.00199	0.0996	0.0911	91	0.0821	82	71-133	10	35	mg/kg	07.03.17 12:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		99		114		80-120	%	07.03.17 12:29
4-Bromofluorobenzene	103		104		94		80-120	%	07.03.17 12:29

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021191

Parent Sample Id: 556360-001

Matrix: Soil

MS Sample Id: 556360-001 S

Prep Method: SW5030B

Date Prep: 06.29.17

MSD Sample Id: 556360-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0915	91	0.0716	72	70-130	24	35	mg/kg	06.29.17 21:29	
Toluene	<0.00202	0.101	0.0791	78	0.0610	61	70-130	26	35	mg/kg	06.29.17 21:29	X
Ethylbenzene	<0.00202	0.101	0.0858	85	0.0741	74	71-129	15	35	mg/kg	06.29.17 21:29	
m,p-Xylenes	<0.00404	0.202	0.154	76	0.112	56	70-135	32	35	mg/kg	06.29.17 21:29	X
o-Xylene	<0.00202	0.101	0.0838	83	0.0638	64	71-133	27	35	mg/kg	06.29.17 21:29	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		104		80-120	%	06.29.17 21:29
4-Bromofluorobenzene	119		118		80-120	%	06.29.17 21:29



QC Summary 556360

COG Operating LLC

Salvador Fee #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021299

Parent Sample Id: 556361-001

Matrix: Soil

MS Sample Id: 556361-001 S

Prep Method: SW5030B

Date Prep: 06.30.17

MSD Sample Id: 556361-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0673	67	0.0370	37	70-130	58	35	mg/kg	06.30.17 09:31	XF
Toluene	<0.00200	0.0998	0.0572	57	0.0370	37	70-130	43	35	mg/kg	06.30.17 09:31	XF
Ethylbenzene	<0.00200	0.0998	0.0547	55	0.0287	29	71-129	62	35	mg/kg	06.30.17 09:31	XF
m_p-Xylenes	<0.00399	0.200	0.0938	47	0.0520	26	70-135	57	35	mg/kg	06.30.17 09:31	XF
o-Xylene	<0.00200	0.0998	0.0533	53	0.0325	33	71-133	48	35	mg/kg	06.30.17 09:31	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		89		80-120	%	06.30.17 09:31
4-Bromofluorobenzene	90		87		80-120	%	06.30.17 09:31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021391

Parent Sample Id: 556362-001

Matrix: Soil

MS Sample Id: 556362-001 S

Prep Method: SW5030B

Date Prep: 06.30.17

MSD Sample Id: 556362-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0779	78	0.0706	70	70-130	10	35	mg/kg	07.01.17 03:32	
Toluene	<0.00199	0.0996	0.0789	79	0.0689	68	70-130	14	35	mg/kg	07.01.17 03:32	X
Ethylbenzene	<0.00199	0.0996	0.0784	79	0.0662	66	71-129	17	35	mg/kg	07.01.17 03:32	X
m_p-Xylenes	<0.00398	0.199	0.145	73	0.136	67	70-135	6	35	mg/kg	07.01.17 03:32	X
o-Xylene	<0.00199	0.0996	0.0809	81	0.0675	67	71-133	18	35	mg/kg	07.01.17 03:32	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		118		80-120	%	07.01.17 03:32
4-Bromofluorobenzene	120		120		80-120	%	07.01.17 03:32

Analytical Method: BTEX by EPA 8021B

Seq Number: 3021493

Parent Sample Id: 556711-008

Matrix: Soil

MS Sample Id: 556711-008 S

Prep Method: SW5030B

Date Prep: 07.03.17

MSD Sample Id: 556711-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00351	0.175	0.139	79	0.167	97	70-130	18	35	mg/kg	07.03.17 13:02	
Toluene	0.00770	0.175	0.122	65	0.168	93	70-130	32	35	mg/kg	07.03.17 13:02	X
Ethylbenzene	0.0188	0.175	0.151	76	0.189	99	71-129	22	35	mg/kg	07.03.17 13:02	
m_p-Xylenes	0.192	0.351	0.520	93	0.411	63	70-135	23	35	mg/kg	07.03.17 13:02	X
o-Xylene	0.0835	0.175	0.287	116	0.180	56	71-133	46	35	mg/kg	07.03.17 13:02	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		111		80-120	%	07.03.17 13:02
4-Bromofluorobenzene	107		118		80-120	%	07.03.17 13:02



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 06/27/2017 10:15:00 AM

Work Order #: 556360

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	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)?	N/A
#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: Jessica Kramer
 Jessica Kramer

Date: 06/27/2017

Checklist reviewed by: Kelsey Brooks
 Kelsey Brooks

Date: 06/27/2017