



Certificate of Analysis Summary 578424

COG Operating LLC, Artesia, NM

Project Name: GJ West Coop Unit #210



Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy County NM

Date Received in Lab: Wed Mar-07-18 11:00 am

Report Date: 08-MAR-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	578424-001		578424-002		578424-003		578424-004			
	Field Id:	S1 Bttm		S1 E. Sidewall		S1 W. Sidewall		S1 S. Sidewall			
	Depth:	4'-2 In									
	Matrix:	SOIL		SOIL		SOIL		SOIL			
	Sampled:	Mar-05-18 10:00		Mar-05-18 10:05		Mar-05-18 10:10		Mar-05-18 10:15			
BTEX by EPA 8021B	Extracted:	Mar-08-18 07:00		Mar-08-18 07:00		Mar-08-18 07:00		Mar-08-18 07:00			
	Analyzed:	Mar-08-18 11:35		Mar-08-18 11:54		Mar-08-18 12:13		Mar-08-18 13:11			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.00200	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00199	0.00199		
Toluene		<0.00200	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00199	0.00199		
Ethylbenzene		<0.00200	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00199	0.00199		
m,p-Xylenes		<0.00399	0.00399	<0.00401	0.00401	<0.00403	0.00403	<0.00398	0.00398		
o-Xylene		<0.00200	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00199	0.00199		
Total Xylenes		<0.00200	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00199	0.00199		
Total BTEX		<0.00200	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00199	0.00199		
Chloride by EPA 300	Extracted:	Mar-08-18 13:00		Mar-08-18 13:00		Mar-08-18 13:00		Mar-08-18 13:00			
	Analyzed:	Mar-08-18 15:02		Mar-08-18 15:08		Mar-08-18 14:36		Mar-08-18 15:24			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		<24.6	24.6	86.7	4.97	103	4.97	121	4.98		
TPH By SW8015 Mod	Extracted:	Mar-07-18 16:00		Mar-07-18 16:00		Mar-07-18 16:00		Mar-07-18 16:00			
	Analyzed:	Mar-08-18 03:42		Mar-08-18 05:02		Mar-08-18 05:27		Mar-08-18 05:55			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0		
Diesel Range Organics (DRO)		<15.0	15.0	129	15.0	199	15.0	298	15.0		
Oil Range Hydrocarbons (ORO)		<15.0	15.0	30.8	15.0	21.5	15.0	40.3	15.0		
Total TPH		<15.0	15.0	160	15.0	221	15.0	338	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%

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 578424

for
COG Operating LLC

Project Manager: Sheldon Hitchcock

GJ West Coop Unit #210

08-MAR-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-18-24), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):

Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)

Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-18-14)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)



08-MAR-18

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **578424**

GJ West Coop Unit #210

Project Address: Eddy County NM

Sheldon Hitchcock:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 578424. 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. 578424 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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



Sample Cross Reference 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S1 Btm	S	03-05-18 10:00	4' - 2 In	578424-001
S1 E. Sidewall	S	03-05-18 10:05	ft	578424-002
S1 W. Sidewall	S	03-05-18 10:10	ft	578424-003
S1 S. Sidewall	S	03-05-18 10:15	ft	578424-004



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: GJ West Coop Unit #210

Project ID:

Work Order Number(s): 578424

Report Date: 08-MAR-18

Date Received: 03/07/2018

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3043124 BTEX by EPA 8021B

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



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 Bttm**
Lab Sample Id: 578424-001

Matrix: Soil
Date Collected: 03.05.18 10.00

Date Received: 03.07.18 11.00
Sample Depth: 4' - 2 In

Analytical Method: Chloride by EPA 300
Tech: OJS
Analyst: OJS
Seq Number: 3043151

Date Prep: 03.08.18 13.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<24.6	24.6	mg/kg	03.08.18 15.02	U	5

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3043122

Date Prep: 03.07.18 16.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.08.18 03.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.08.18 03.42	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	03.08.18 03.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.08.18 03.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	03.08.18 03.42	
o-Terphenyl	84-15-1	108	%	70-135	03.08.18 03.42	



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 Bttm**
Lab Sample Id: 578424-001

Matrix: Soil
Date Collected: 03.05.18 10.00

Date Received: 03.07.18 11.00
Sample Depth: 4' - 2 In

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3043124

Date Prep: 03.08.18 07.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.08.18 11.35	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.08.18 11.35	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.08.18 11.35	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.08.18 11.35	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.08.18 11.35	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.08.18 11.35	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.08.18 11.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	03.08.18 11.35		
1,4-Difluorobenzene	540-36-3	90	%	70-130	03.08.18 11.35		



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 E. Sidewall**

Matrix: Soil

Date Received: 03.07.18 11.00

Lab Sample Id: 578424-002

Date Collected: 03.05.18 10.05

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.08.18 13.00

Basis: Wet Weight

Seq Number: 3043151

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	86.7	4.97	mg/kg	03.08.18 15.08		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.07.18 16.00

Basis: Wet Weight

Seq Number: 3043122

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.08.18 05.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	129	15.0	mg/kg	03.08.18 05.02		1
Oil Range Hydrocarbons (ORO)	PHCG2835	30.8	15.0	mg/kg	03.08.18 05.02		1
Total TPH	PHC635	160	15.0	mg/kg	03.08.18 05.02		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	108	%	70-135	03.08.18 05.02		
o-Terphenyl	84-15-1	108	%	70-135	03.08.18 05.02		



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 E. Sidewall**

Matrix: Soil

Date Received: 03.07.18 11.00

Lab Sample Id: 578424-002

Date Collected: 03.05.18 10.05

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.08.18 07.00

Basis: Wet Weight

Seq Number: 3043124

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.08.18 11.54	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.08.18 11.54	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.08.18 11.54	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	03.08.18 11.54	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.08.18 11.54	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.08.18 11.54	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.08.18 11.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	70-130	03.08.18 11.54		
1,4-Difluorobenzene	540-36-3	81	%	70-130	03.08.18 11.54		



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 W. Sidewall**

Matrix: Soil

Date Received: 03.07.18 11.00

Lab Sample Id: 578424-003

Date Collected: 03.05.18 10.10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.08.18 13.00

Basis: Wet Weight

Seq Number: 3043151

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	103	4.97	mg/kg	03.08.18 14.36		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.07.18 16.00

Basis: Wet Weight

Seq Number: 3043122

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.08.18 05.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	199	15.0	mg/kg	03.08.18 05.27		1
Oil Range Hydrocarbons (ORO)	PHCG2835	21.5	15.0	mg/kg	03.08.18 05.27		1
Total TPH	PHC635	221	15.0	mg/kg	03.08.18 05.27		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	106	%	70-135	03.08.18 05.27		
o-Terphenyl	84-15-1	104	%	70-135	03.08.18 05.27		



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 W. Sidewall**

Matrix: Soil

Date Received: 03.07.18 11.00

Lab Sample Id: 578424-003

Date Collected: 03.05.18 10.10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.08.18 07.00

Basis: Wet Weight

Seq Number: 3043124

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	03.08.18 12.13	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	03.08.18 12.13	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	03.08.18 12.13	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	03.08.18 12.13	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	03.08.18 12.13	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	03.08.18 12.13	U	1
Total BTEX		<0.00202	0.00202	mg/kg	03.08.18 12.13	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	70-130	03.08.18 12.13		
1,4-Difluorobenzene	540-36-3	81	%	70-130	03.08.18 12.13		



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 S. Sidewall**

Matrix: Soil

Date Received: 03.07.18 11.00

Lab Sample Id: 578424-004

Date Collected: 03.05.18 10.15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 03.08.18 13.00

Basis: Wet Weight

Seq Number: 3043151

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	121	4.98	mg/kg	03.08.18 15.24		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 03.07.18 16.00

Basis: Wet Weight

Seq Number: 3043122

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.08.18 05.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	298	15.0	mg/kg	03.08.18 05.55		1
Oil Range Hydrocarbons (ORO)	PHCG2835	40.3	15.0	mg/kg	03.08.18 05.55		1
Total TPH	PHC635	338	15.0	mg/kg	03.08.18 05.55		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	03.08.18 05.55	
o-Terphenyl	84-15-1	101	%	70-135	03.08.18 05.55	



Certificate of Analytical Results 578424



COG Operating LLC, Artesia, NM

GJ West Coop Unit #210

Sample Id: **S1 S. Sidewall**

Matrix: Soil

Date Received: 03.07.18 11.00

Lab Sample Id: 578424-004

Date Collected: 03.05.18 10.15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 03.08.18 07.00

Basis: Wet Weight

Seq Number: 3043124

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.08.18 13.11	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.08.18 13.11	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.08.18 13.11	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.08.18 13.11	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.08.18 13.11	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.08.18 13.11	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.08.18 13.11	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	80	%	70-130	03.08.18 13.11		
4-Bromofluorobenzene	460-00-4	104	%	70-130	03.08.18 13.11		

- 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 **SQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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



QC Summary 578424

COG Operating LLC GJ West Coop Unit #210

Analytical Method: Chloride by EPA 300

Seq Number: 3043151

MB Sample Id: 7640419-1-BLK

Matrix: Solid

LCS Sample Id: 7640419-1-BKS

Prep Method: E300P

Date Prep: 03.08.18

LCSD Sample Id: 7640419-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	248	99	249	100	90-110	0	20	mg/kg	03.08.18 14:25	

Analytical Method: Chloride by EPA 300

Seq Number: 3043151

Parent Sample Id: 578424-003

Matrix: Soil

MS Sample Id: 578424-003 S

Prep Method: E300P

Date Prep: 03.08.18

MSD Sample Id: 578424-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	103	249	360	103	360	103	90-110	0	20	mg/kg	03.08.18 14:41	

Analytical Method: Chloride by EPA 300

Seq Number: 3043151

Parent Sample Id: 578425-005

Matrix: Soil

MS Sample Id: 578425-005 S

Prep Method: E300P

Date Prep: 03.08.18

MSD Sample Id: 578425-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.97	249	250	100	250	100	90-110	0	20	mg/kg	03.08.18 15:55	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3043122

MB Sample Id: 7640359-1-BLK

Matrix: Solid

LCS Sample Id: 7640359-1-BKS

Prep Method: TX1005P

Date Prep: 03.07.18

LCSD Sample Id: 7640359-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	986	99	971	97	70-135	2	35	mg/kg	03.08.18 02:51	
Diesel Range Organics (DRO)	<15.0	1000	1020	102	996	100	70-135	2	35	mg/kg	03.08.18 02:51	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	103		110		107		70-135	%	03.08.18 02:51
o-Terphenyl	103		109		104		70-135	%	03.08.18 02:51

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

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

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

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



QC Summary 578424

COG Operating LLC GJ West Coop Unit #210

Analytical Method: TPH By SW8015 Mod

Seq Number: 3043122

Parent Sample Id: 578424-001

Matrix: Soil

MS Sample Id: 578424-001 S

Prep Method: TX1005P

Date Prep: 03.07.18

MSD Sample Id: 578424-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	1030	103	1040	104	70-135	1	35	mg/kg	03.08.18 04:10	
Diesel Range Organics (DRO)	<15.0	997	1050	105	1090	109	70-135	4	35	mg/kg	03.08.18 04:10	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	117		117		70-135	%	03.08.18 04:10
o-Terphenyl	109		112		70-135	%	03.08.18 04:10

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043124

MB Sample Id: 7640418-1-BLK

Matrix: Solid

LCS Sample Id: 7640418-1-BKS

Prep Method: SW5030B

Date Prep: 03.08.18

LCSD Sample Id: 7640418-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0766	76	0.0725	73	70-130	5	35	mg/kg	03.08.18 07:26	
Toluene	<0.00202	0.101	0.0827	82	0.0777	78	70-130	6	35	mg/kg	03.08.18 07:26	
Ethylbenzene	<0.00202	0.101	0.0953	94	0.0889	89	70-130	7	35	mg/kg	03.08.18 07:26	
m,p-Xylenes	<0.00403	0.202	0.188	93	0.176	88	70-130	7	35	mg/kg	03.08.18 07:26	
o-Xylene	<0.00202	0.101	0.0941	93	0.0901	90	70-130	4	35	mg/kg	03.08.18 07:26	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	78		83		89		70-130	%	03.08.18 07:26
4-Bromofluorobenzene	94		111		116		70-130	%	03.08.18 07:26

Analytical Method: BTEX by EPA 8021B

Seq Number: 3043124

Parent Sample Id: 578423-001

Matrix: Soil

MS Sample Id: 578423-001 S

Prep Method: SW5030B

Date Prep: 03.08.18

MSD Sample Id: 578423-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0241	24	0.0452	45	70-130	61	35	mg/kg	03.08.18 08:05	XF
Toluene	0.00225	0.100	0.0301	28	0.0506	48	70-130	51	35	mg/kg	03.08.18 08:05	XF
Ethylbenzene	0.00208	0.100	0.0372	35	0.0592	57	70-130	46	35	mg/kg	03.08.18 08:05	XF
m,p-Xylenes	0.00700	0.201	0.0970	45	0.121	56	70-130	22	35	mg/kg	03.08.18 08:05	X
o-Xylene	0.00369	0.100	0.0474	44	0.0610	57	70-130	25	35	mg/kg	03.08.18 08:05	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	78		78		70-130	%	03.08.18 08:05
4-Bromofluorobenzene	118		110		70-130	%	03.08.18 08:05

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

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

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

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



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[illegible]

☒ **Notice:** Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xerco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xerco 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 Xerco. A minimum charge of \$75 will be applied to each project. Xerco's liability will be limited to the cost of samples. Any samples received by Xerco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 03/07/2018 11:00:00 AM

Work Order #: 578424

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.9
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	No
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

TPH received in bulk jars

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Connie Hernandez

Connie Hernandez

Date: 03/07/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 03/08/2018