Analytical Report 578034

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

GJ West COOP Unit#210

05-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)

05-MAR-18

Project Manager: **Sheldon Hitchcock**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **578034**
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) 578034. 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. 578034 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,

Mike Kimmel
Client Services Manager

Sample Cross Reference 578034

COG Operating LLC, Artesia, NM

GJ West COOP Unit#210

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-2 Bttm	S	03-01-18 12:00	4' - 2"	578034-001
S-2 E.Sidewall	S	03-01-18 11:40		578034-002
S-2 W. Sidewall	S	03-01-18 11:50		578034-003

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: GJ West COOP Unit#210

Project ID:
Work Order Number(s): *578034*

Report Date: *05-MAR-18*
Date Received: *03/02/2018*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3042714 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3042830 Inorganic Anions by EPA 300
Lab Sample ID 578034-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 578034-001, -002, -003.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analysis Summary 578034

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: Fri Mar-02-18 11:50 am

Report Date: 05-MAR-18

Project Manager: Jessica Kramer

Analysis Requested									
	Lab Id:	578034-001		578034-002		578034-003			
	Field Id:	S-2 Bttm		S-2 E.Sidewall		S-2 W. Sidewall			
	Depth:	4'-2"							
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Mar-01-18 12:00		Mar-01-18 11:40		Mar-01-18 11:50			
BTEX by EPA 8021B	***Extracted:***	Mar-03-18 08:00		Mar-03-18 08:00		Mar-03-18 08:00			
	Analyzed:	Mar-03-18 13:47		Mar-03-18 13:27		Mar-03-18 15:22			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.0202	0.0202	<0.00200	0.00200	<0.00200	0.00200		
Toluene		<0.0202	0.0202	<0.00200	0.00200	<0.00200	0.00200		
Ethylbenzene		<0.0202	0.0202	<0.00200	0.00200	<0.00200	0.00200		
m,p-Xylenes		<0.0403	0.0403	<0.00399	0.00399	<0.00401	0.00401		
o-Xylene		<0.0202	0.0202	<0.00200	0.00200	<0.00200	0.00200		
Total Xylenes		<0.0202	0.0202	<0.00200	0.00200	<0.00200	0.00200		
Total BTEX		<0.0202	0.0202	<0.00200	0.00200	<0.00200	0.00200		
Chloride by EPA 300	***Extracted:***	Mar-02-18 16:00		Mar-02-18 16:00		Mar-02-18 16:00			
	Analyzed:	Mar-02-18 23:25		Mar-02-18 23:53		Mar-02-18 23:58			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		588	4.99	19.6	4.96	10.7	4.94		
TPH by SW8015 Mod	***Extracted:***	Mar-02-18 18:00		Mar-02-18 18:00		Mar-02-18 18:00			
	Analyzed:	Mar-03-18 05:18		Mar-03-18 05:39		Mar-03-18 05:59			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0		
Diesel Range Organics (DRO)		33.0	15.0	<15.0	15.0	<15.0	15.0		
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<15.0	15.0		
Total TPH		33.0	15.0	<15.0	15.0	<15.0	15.0		

Mike Kimmel
Client Services Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: GJ West COOP Unit#210

Work Orders : 578034,

Project ID:

Lab Batch #: 3042782 **Sample:** 578034-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 05:18

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.9	103	70-135	
o-Terphenyl	51.0	50.0	102	70-135	

Lab Batch #: 3042782 **Sample:** 578034-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 05:39

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.9	99.8	95	70-135	
o-Terphenyl	47.6	49.9	95	70-135	

Lab Batch #: 3042782 **Sample:** 578034-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 05:59

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.9	107	70-135	
o-Terphenyl	55.4	50.0	111	70-135	

Lab Batch #: 3042714 **Sample:** 578034-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 13:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0234	0.0300	78	70-130	
4-Bromofluorobenzene	0.0321	0.0300	107	70-130	

Lab Batch #: 3042714 **Sample:** 578034-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 13:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0224	0.0300	75	70-130	
4-Bromofluorobenzene	0.0258	0.0300	86	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: GJ West COOP Unit#210

Work Orders : 578034,

Project ID:

Lab Batch #: 3042714 **Sample:** 578034-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 15:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0244	0.0300	81	70-130	
4-Bromofluorobenzene	0.0327	0.0300	109	70-130	

Lab Batch #: 3042782 **Sample:** 7640130-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 04:17

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.0	100	92	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 3042714 **Sample:** 7640101-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 10:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0243	0.0300	81	70-130	
4-Bromofluorobenzene	0.0318	0.0300	106	70-130	

Lab Batch #: 3042782 **Sample:** 7640130-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 04:37

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	100	104	70-135	
o-Terphenyl	50.9	50.0	102	70-135	

Lab Batch #: 3042714 **Sample:** 7640101-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 09:00

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0263	0.0300	88	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: GJ West COOP Unit#210

Work Orders : 578034,

Project ID:

Lab Batch #: 3042782 **Sample:** 7640130-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 04:56

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	100	110	70-135	
o-Terphenyl	54.6	50.0	109	70-135	

Lab Batch #: 3042714 **Sample:** 7640101-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 03/03/18 09:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	70-130	
4-Bromofluorobenzene	0.0364	0.0300	121	70-130	

Lab Batch #: 3042782 **Sample:** 578034-003 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 06:18

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.7	101	70-135	
o-Terphenyl	48.6	49.9	97	70-135	

Lab Batch #: 3042714 **Sample:** 578037-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 09:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0253	0.0300	84	70-130	
4-Bromofluorobenzene	0.0348	0.0300	116	70-130	

Lab Batch #: 3042782 **Sample:** 578034-003 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 06:38

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.9	107	70-135	
o-Terphenyl	52.9	50.0	106	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: GJ West COOP Unit#210

Work Orders : 578034,

Project ID:

Lab Batch #: 3042714 **Sample:** 578037-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 09:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0261	0.0300	87	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: GJ West COOP Unit#210

Work Order #: 578034 **Project ID:**

Analyst: ALJ **Date Prepared:** 03/03/2018 **Date Analyzed:** 03/03/2018

Lab Batch ID: 3042714 **Sample:** 7640101-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00199	0.0996	0.0877	88	0.100	0.0869	87	1	70-130	35	
Toluene	<0.00199	0.0996	0.0933	94	0.100	0.0926	93	1	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.110	110	0.100	0.107	107	3	70-130	35	
m,p-Xylenes	<0.00398	0.199	0.217	109	0.200	0.211	106	3	70-130	35	
o-Xylene	<0.00199	0.0996	0.107	107	0.100	0.103	103	4	70-130	35	

Analyst: OJS **Date Prepared:** 03/02/2018 **Date Analyzed:** 03/02/2018

Lab Batch ID: 3042830 **Sample:** 7640137-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	235	94	250	228	91	3	90-110	20	

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

BS / BSD Recoveries

Project Name: GJ West COOP Unit#210

Work Order #: 578034 **Project ID:**

Analyst: ARM **Date Prepared:** 03/02/2018 **Date Analyzed:** 03/03/2018

Lab Batch ID: 3042782 **Sample:** 7640130-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1030	103	1000	1150	115	11	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	852	85	1000	932	93	9	70-135	35	

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

Form 3 - MS / MSD Recoveries

Project Name: GJ West COOP Unit#210

Work Order # : 578034 **Project ID:**

Lab Batch ID: 3042714 **QC- Sample ID:** 578037-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03/03/2018 **Date Prepared:** 03/03/2018 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00199	0.0994	0.0599	60	0.0998	0.0667	67	11	70-130	35	X
Toluene	0.0122	0.0994	0.0689	57	0.0998	0.0794	67	14	70-130	35	X
Ethylbenzene	0.00447	0.0994	0.0717	68	0.0998	0.0787	74	9	70-130	35	X
m,p-Xylenes	0.00812	0.199	0.142	67	0.200	0.153	72	7	70-130	35	X
o-Xylene	0.00412	0.0994	0.0736	70	0.0998	0.0772	73	5	70-130	35	

Lab Batch ID: 3042830 **QC- Sample ID:** 578034-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03/02/2018 **Date Prepared:** 03/02/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	588	250	790	81	250	807	88	2	90-110	20	X

Lab Batch ID: 3042830 **QC- Sample ID:** 578036-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03/03/2018 **Date Prepared:** 03/02/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<4.95	248	237	96	248	233	94	2	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: GJ West COOP Unit#210

Work Order # : 578034 **Project ID:**

Lab Batch ID: 3042782 **QC- Sample ID:** 578034-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 03/03/2018 **Date Prepared:** 03/02/2018 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	1020	102	999	1090	109	7	70-135	35	
Diesel Range Organics (DRO)	<15.0	997	825	83	999	880	88	6	70-135	35	

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

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

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

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

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

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

Setting the Standard since 1990

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Xenco Quote # | Xenco Job # 578034

Client / Reporting Information

Company Name / Branch: COG Operating, LLC

Company Address: 2407 Pecos Ave. Artesia NM 88210

Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; cgray@concho.com; rhaskell@concho.com

Project Contact: Sheldon Hitchcock

Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: GJ West COOP Unit #210

Project Location: Eddy County, NM

Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701

PO Number:

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
WI = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	ICE	Analytical Information: TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments
1	S-2 Bttm	4' 2"	2/29/2018	12:00	S	1								X	X	X	X	
2	S-2 E. SIDEWALL	N/A	2/29/2025	11:40	S	1								X	X	X	X	
3	S-2 W. SIDEWALL	N/A	2/29/2026	11:50	S	1								X	X	X	X	
4																		
5																		
6																		
7																		
8																		
9																		
10					S	1												

Turnaround Time (Business days)

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

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

Data Deliverable Information

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

Notes:

Temp: 3.6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3.4

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Sheldon Hitchcock	3-1-18 1:05	Ezra Gogal	Ezra Gogal	3-1-18 3:32	
2						3/2/18 11:50
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor

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

Final 1.000

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 03/02/2018 11:50:00 AM

Work Order #: 578034

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)?	3.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	NM JOB
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Katie Lowe Date: 03/02/2018

Checklist reviewed by: Jessica Kramer Date: 03/02/2018