CONCHO

[Sheldon L. Hitchcock]
[HSE Coordinator]

March 29, 2018

Crystal Weaver
Oil Conservation Division, District 2
811 S. First St.
Artesia, NM 88210

Mark Naranjo
New Mexico State Land Office
1001 S. Atkinson
Roswell, NM 88230

Re: Closure Letter
GJ West COOP Unit #210
API #: 30-015-36703
RP#: 2RP-4487
Unit Letter C Section 16, Township 17S, Range 29E
Eddy County, NM

Ms. Weaver/Mr. Naranjo,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure request for the GJ West COOP Unit #210. This release occurred on November 13, 2017, and impacted the lined tank battery. Upon inspection of the liner it was determined that the liner was not integrally sound and that fluid had impacted the soil beneath the liner. Following an investigation a remediation work plan was drafted and submitted to the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO) on February 16, 2018. The work plan was approved by NMOCD on March 2, 2018.

BACKGROUND

The GJ West COOP Unit #210 is located in Unit Letter C, Section 16, Township 17S, and Range 29 East in Eddy County, New Mexico. More specifically the latitude and longitude for this release are 32.8391876 North and -104.0830383 West.

On November 13, 2017, a swedge on the production tank failed due to corrosion, resulting in the release of approximately one-hundred and fifty (150) barrels (bbls) of crude oil. The fluid remained inside of the lined containment. Vacuum trucks were utilized to recover freestanding fluids. Approximately one-hundred and forty (140) bbls of oil were recovered. An inspection of the liner was conducted once the oil and gravel were removed. Holes were discovered in the liner and the soil beneath the liner was visibly impacted.

On December 20, 2017, Tetra Tech utilized an air rotary drilling rig to assess the soil impacts beneath the liner. Analytical results from the soil boring activities are summarized in the table below. Due to limitations presented by the infrastructure within the tank battery. The battery was dismantled to allow for remedial activities.

GROUNDWATER AND SITE RANKING

According to the New Mexico Office of the State Engineers database, groundwater in the project vicinity is approximately seventy-six (76) feet below ground surface (BGS). Therefore the site ranking for this release is ten (10) based on the following:

Depth to ground water	50-100 feet
Distance to surface water body	>1000-feet
Wellhead Protection Area	>1000-feet

Analytical Results

Soil Boring Results

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)
BH-1	0-1	0.663	0.746	--	2200
BH-1	2-3	0.979	21.1	--	4520
BH-1	4-5	--	--	--	58.5
BH-1	6-7	--	--	--	<15.0
BH-1	9-10	--	--	--	150
BH-2	0-1	37.3	388	--	10500
BH-2	2-3	0.276	11.8	--	4850
BH-2	4-5	--	--	--	<15.0
BH-2	6-7	--	--	--	237
BH-2	9-10	--	--	--	<14.9
BH-3	0-1	23.9	233	--	12900
BH-3	2-3	3.74	51	--	3270
BH-3	4-5	<0.0100	0.0535	--	19.7
BH-3	6-7	--	--	--	<15.0
BH-3	9-10	--	--	--	<15.0
BH-4	0-1	12.0	144	--	12400
BH-4	2-3	0.00410	0.0812	--	30.7

(--) Analysis Not Requested

Confirmation Soil Sampling Results

Sample ID	Depth	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)
S-1	4’ 2”	<0.002	<0.002	<24.6	33.0
S-1 E.	SIDEWALL	<0.002	<0.002	86.7	160
S-1 W.	SIDEWALL	<0.002	<0.002	103	221
SOUTH	SIDEWALL	<0.002	<0.002	121	338
S-2	4’ 2”	<0.002	<0.002	588	33
S-2 E.	SIDEWALL	<0.002	<0.002	19.6	<15.0
S-2 W.	SIDEWALL	<0.002	<0.002	10.7	<15.0
S-3	4’ 2”	<0.002	0.0289	13.7	<14.9
S-3 E.	SIDEWALL	<0.00199	<0.00199	22.8	<15.0
S-3 W.	SIDEWALL	<0.00199	<0.00199	47.0	<15.0
S-4	2.5’	<0.00199	0.00414	153	<15.0
S-4 E.	SIDEWALL	<0.00199	0.0170	68.3	<15.0
S-4 W.	SIDEWALL	<0.002	<0.002	<4.95	<15.0
NORTH	SIDEWALL	<0.002	<0.002	<4.95	<15.0

REMEDIAL ACTIONS

- The impacted area in the vicinity of bore hole locations BH-1 through BH-3 was excavated to the depth of four (4) feet BGS.
- The impacted area in the vicinity of bore hole location BH-4 was excavated to a depth of two and one-half (2.5) feet BGS.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Per NMOCD stipulations confirmation soil samples were taken from the bottom and sidewalls of the excavation. The confirmation soil samples representing each of the four bore hole locations are labeled with an “S” and their corresponding number. A site diagram of sample locations is presented in Appendix I.
- Confirmation soil samples were also taken from the north and south sidewall of the excavated area.
- After reviewing the results from the confirmation soil sampling, NMOCD granted permission to backfill the excavation.
- The excavation was backfilled with caliche and prepared for the construction of a new tank battery.

March 29, 2018

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the New Mexico State Land Office grant closure approval for the GJ West COOP Unit #210 incident that occurred on November 13, 2017.

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

Sincerely,

Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

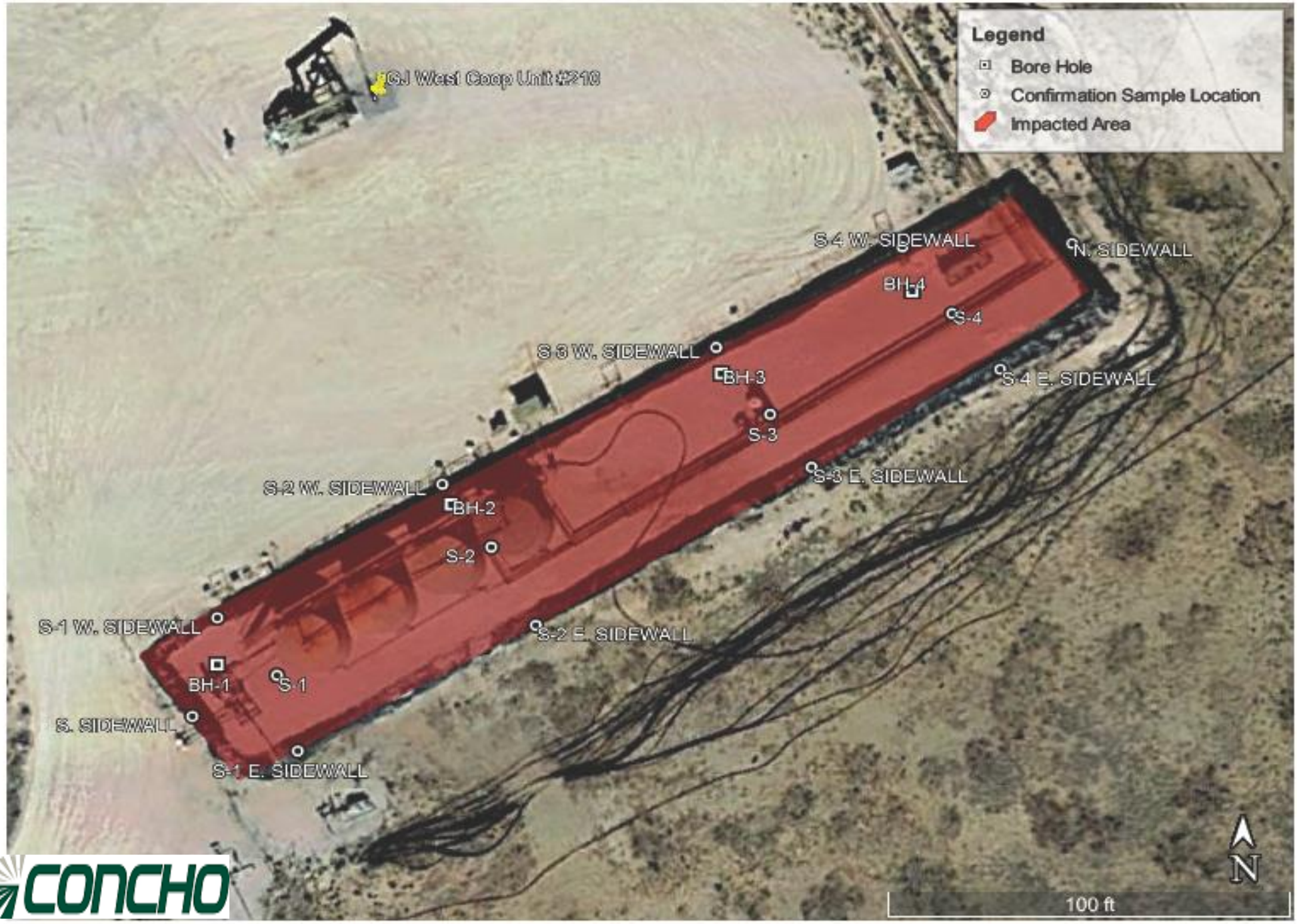
Enclosed:

Appendix I: Site Diagram
Appendix II: Groundwater Data
Appendix III: Initial C-141 (Copy)
Appendix IV: Final C-141
Appendix V: Analytical Reports and Chain-of-Custody Forms

APPENDIX I

November 13, 3017

GJ West COOP Unit #210



CONCHO

APPENDIX II

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

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
RA 11807 POD1		ED	1	2	3	22	17S	29E	587360	3631585	131	76	55

Average Depth to Water: **76 feet**

Minimum Depth: **76 feet**

Maximum Depth: **76 feet**

Record Count: 1

Basin/County Search:

County: Eddy

PLSS Search:

Township: 17S **Range:** 29E

APPENDIX III

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

State of New Mexico
Energy Minerals and Natural Resources

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

NM OIL CONSERVATION
ARTESIA DISTRICT
NOV 15 2017
RECEIVED

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1732042024

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: **GJ West Coop Unit #210**	Facility Type: **Tank Battery**

Surface Owner: State	Mineral Owner: State	API No.: 30-015-36703

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	16	17S	29E	990	North	1650	West	Eddy

Latitude: 32.8391876 **Longitude:** -104.0830383 NAD83

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 150bbls	Volume Recovered: 140bbls
Source of Release: Swedge on production tank	Date and Hour of Occurrence: 11/13/2017 9:00am	Date and Hour of Discovery: 11/13/2017 9:00am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher & Crystal Weaver-NMOCD Amber Groves-NMSLO	
By Whom? Dakota Neel	Date and Hour: 11/13/2017 12:30pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Swedge on production tank failed due to corrosion. The fittings were replaced.

Describe Area Affected and Cleanup Action Taken.*

All of the fluid remained inside of the lined containment. A vacuum truck was dispatched to recover all freestanding fluids. Concho will have the spill area evaluated for any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

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

Signature: Sheldon Hitchcock	OIL CONSERVATION DIVISION Approved by Environmental Specialist: Signed By Mike Bratcher	
Printed Name: Sheldon L. Hitchcock		
Title: HSE Coordinator	Approval Date: 11/16/17	Expiration Date: N/A
E-mail Address: slhitchcock@concho.com	Conditions of Approval: See Attached	Attached ☐ 3RP-4487
Date: 11/15/2017 Phone: 575-746-2010		

* Attach Additional Sheets If Necessary

APPENDIX IV

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: **COG Operating, LLC** (OGRID# 229137)	Contact: **Robert McNeill**
Address: **600 West Illinois Avenue, Midland TX 79701**	Telephone No.: **432-683-7443**
Facility Name**: GJ West Coop Unit #210**	Facility Type**: Tank Battery**

Surface Owner: State	Mineral Owner: State	API No.: 30-015-36703

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	16	17S	29E	990	North	1650	West	Eddy

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By Whom? Dakota Neel	Date and Hour: 11/13/2017 12:30pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Swedge on production tank failed due to corrosion. The fitting was replaced.

Describe Area Affected and Cleanup Action Taken.*

All of the fluid remained inside of the lined containment. The containment was inspected and found to not have the structural integrity to retain fluids. The soil beneath the liner was assessed and a remediation work plan was drafted. The remediation work plan was subsequently approved by NMOCD and remedial activities were carried out in accordance with the approved work plan. A new tank battery and secondary containment were constructed at this location.

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

Signature: Sheldon Hitchcock

Printed Name: Sheldon L. Hitchcock

Title: HSE Coordinator

E-mail Address: slhitchcock@concho.com

Date: March 29, 2018 Phone: 575-746-2010

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Ashley Maxwell

Approval Date: 05/08/2023 Expiration Date:

Conditions of Approval:

Attached ☐

* Attach Additional Sheets If Necessary

APPENDIX V

Analytical Report 571931

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

GJ West Coop Unit #210

212C-MD-01056.300

18-JAN-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

18-JAN-18

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

Reference: XENCO Report No(s): **571931**
GJ West Coop Unit #210
Project Address: Eddy Co, NM

Ike Tavarez:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 571931. 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. 571931 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 571931

Tetra Tech- Midland, Midland, TX

GJ West Coop Unit #210

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1 0-1	S	12-20-17 00:00		571931-001
BH-1 2-3	S	12-20-17 00:00		571931-002
BH-1 4-5	S	12-20-17 00:00		571931-003
BH-1 6-7	S	12-20-17 00:00		571931-004
BH-1 9-10	S	12-20-17 00:00		571931-005
BH-2 0-1	S	12-21-17 00:00		571931-009
BH-2 2-3	S	12-21-17 00:00		571931-010
BH-2 4-5	S	12-21-17 00:00		571931-011
BH-2 6-7	S	12-21-17 00:00		571931-012
BH-2 9-10	S	12-21-17 00:00		571931-013
BH-3 0-1	S	12-21-17 00:00		571931-018
BH-3 2-3	S	12-21-17 00:00		571931-019
BH-3 4-5	S	12-21-17 00:00		571931-020
BH-3 6-7	S	12-21-17 00:00		571931-021
BH-3 9-10	S	12-21-17 00:00		571931-022
BH-4 0-1	S	12-21-17 00:00		571931-026
BH-4 2-3	S	12-21-17 00:00		571931-027
BH-1 14-15	S	12-20-17 00:00		Not Analyzed
BH-1 19-20	S	12-20-17 00:00		Not Analyzed
BH-1 24-25	S	12-20-17 00:00		Not Analyzed
BH-2 14-15	S	12-21-17 00:00		Not Analyzed
BH-2 19-20	S	12-21-17 00:00		Not Analyzed
BH-2 24-25	S	12-21-17 00:00		Not Analyzed
BH-2 29-30	S	12-21-17 00:00		Not Analyzed
BH-3 14-15	S	12-21-17 00:00		Not Analyzed
BH-3 19-20	S	12-21-17 00:00		Not Analyzed
BH-3 24-25	S	12-21-17 00:00		Not Analyzed
BH-4 4-5	S	12-21-17 00:00		Not Analyzed
BH-4 6-7	S	12-21-17 00:00		Not Analyzed
BH-4 9-10	S	12-21-17 00:00		Not Analyzed
BH-4 14-15	S	12-21-17 00:00		Not Analyzed
BH-4 19-20	S	12-21-17 00:00		Not Analyzed
BH-4 24-25	S	12-21-17 00:00		Not Analyzed

CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: GJ West Coop Unit #210

Project ID: *212C-MD-01056.300*
Work Order Number(s): *571931*

Report Date: *18-JAN-18*
Date Received: *12/21/2017*

Sample receipt non conformances and comments:

01/02/18: added Btex on BH-3 @ 4-5' per Clair Gonzales.

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3036675 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3036802 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3037056 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3037186 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3037361 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 571931

Tetra Tech- Midland, Midland, TX

Project Name: GJ West Coop Unit #210

Project Id: 212C-MD-01056.300
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Thu Dec-21-17 02:48 pm
Report Date: 18-JAN-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	571931-001		571931-002		571931-003		571931-004		571931-005		571931-009	
	Field Id:	BH-1 0-1		BH-1 2-3		BH-1 4-5		BH-1 6-7		BH-1 9-10		BH-2 0-1	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-20-17 00:00		Dec-20-17 00:00		Dec-20-17 00:00		Dec-20-17 00:00		Dec-20-17 00:00		Dec-21-17 00:00	
BTEX by EPA 8021B	***Extracted:***	Dec-21-17 17:00		Dec-22-17 09:30								Dec-28-17 10:00	
	Analyzed:	Dec-22-17 10:12		Dec-22-17 18:14								Dec-28-17 23:30	
	Units/RL:	mg/kg	RL	mg/kg	RL							mg/kg	RL
Benzene		0.0663	0.00200	0.979	0.100							37.3	0.994
Toluene		0.162	0.00200	1.58	0.100							131	0.994
Ethylbenzene		0.160	0.00200	4.80	0.100							83.5	0.994
m,p-Xylenes		0.261	0.00399	9.67	0.200							99.4	1.99
o-Xylene		0.0964	0.00200	4.03	0.100							37.2	0.994
Total Xylenes		0.357	0.00200	13.7	0.100							137	0.994
Total BTEX		0.746	0.00200	21.1	0.100							388	0.994
TPH By SW8015 Mod	***Extracted:***	Dec-21-17 16:00		Dec-21-17 16:00		Jan-10-18 17:00		Jan-16-18 16:00		Jan-10-18 17:00		Dec-21-17 16:00	
	Analyzed:	Dec-22-17 06:13		Dec-22-17 06:35		Jan-11-18 01:34		Jan-17-18 01:10		Jan-11-18 02:17		Dec-22-17 06:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		515	14.9	1300	74.9	27.9 K	14.9	<15.0	15.0	46.6 K	14.9	4450	74.9
Diesel Range Organics (DRO)		1410	14.9	2730	74.9	30.6 K	14.9	<15.0	15.0	103 K	14.9	5060	74.9
Oil Range Hydrocarbons (ORO)		297	14.9	491	74.9	<14.9	14.9	<15.0	15.0	<14.9	14.9	1000	74.9
Total TPH		2220	14.9	4520	74.9	58.5 K	14.9	<15.0	15.0	150 K	14.9	10500	74.9

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 571931

Tetra Tech- Midland, Midland, TX

Project Name: GJ West Coop Unit #210

Project Id: 212C-MD-01056.300
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Thu Dec-21-17 02:48 pm
Report Date: 18-JAN-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	571931-010		571931-011		571931-012		571931-013		571931-018		571931-019	
	Field Id:	BH-2 2-3		BH-2 4-5		BH-2 6-7		BH-2 9-10		BH-3 0-1		BH-3 2-3	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-21-17 00:00		Dec-21-17 00:00		Dec-21-17 00:00		Dec-21-17 00:00		Dec-21-17 00:00		Dec-21-17 00:00	
BTEX by EPA 8021B	***Extracted:***	Dec-22-17 09:30								Dec-26-17 10:00		Dec-22-17 09:30	
	Analyzed:	Dec-22-17 17:55								Dec-27-17 07:26		Dec-22-17 19:11	
	Units/RL:	mg/kg	RL							mg/kg	RL	mg/kg	RL
Benzene		0.276	0.100							23.9	0.501	3.74	0.101
Toluene		1.09	0.100							68.2	0.501	15.3	0.101
Ethylbenzene		2.34	0.100							43.4	0.501	11.5	0.101
m,p-Xylenes		4.36	0.200							70.5	1.00	15.0	0.201
o-Xylene		3.73	0.100							27.3	0.501	5.46	0.101
Total Xylenes		8.09	0.100							97.8	0.501	20.5	0.101
Total BTEX		11.8	0.100							233	0.501	51.0	0.101
TPH By SW8015 Mod	***Extracted:***	Dec-21-17 16:00		Jan-10-18 17:00		Jan-10-18 17:00		Jan-10-18 17:00		Dec-21-17 16:00		Dec-21-17 16:00	
	Analyzed:	Dec-22-17 07:17		Jan-11-18 02:39		Jan-11-18 03:01		Jan-11-18 03:23		Dec-22-17 07:36		Dec-22-17 08:37	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		786	75.0	<15.0	15.0	120 K	14.9	<14.9	14.9	3840	74.8	1250	14.9
Diesel Range Organics (DRO)		3350	75.0	<15.0	15.0	98.9 K	14.9	<14.9	14.9	7690	74.8	1710	14.9
Oil Range Hydrocarbons (ORO)		709	75.0	<15.0	15.0	18.4 K	14.9	<14.9	14.9	1320	74.8	307	14.9
Total TPH		4850	75.0	<15.0	15.0	237 K	14.9	<14.9	14.9	12900	74.8	3270	14.9

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 571931

Tetra Tech- Midland, Midland, TX

Project Name: GJ West Coop Unit #210

Project Id: 212C-MD-01056.300
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Thu Dec-21-17 02:48 pm
Report Date: 18-JAN-18
Project Manager: Kelsey Brooks

Analysis Requested																			
	Lab Id:	571931-020		571931-021		571931-022		571931-026				571931-027							
	Field Id:	BH-3 4-5		BH-3 6-7		BH-3 9-10		BH-4 0-1				BH-4 2-3							
	Depth:																		
	Matrix:	SOIL		SOIL		SOIL		SOIL				SOIL							
	Sampled:	Dec-21-17 00:00		Dec-21-17 00:00		Dec-21-17 00:00		Dec-21-17 00:00				Dec-21-17 00:00							
BTEX by EPA 8021B	***Extracted:***	Jan-03-18 14:00						Dec-22-17 09:30				Dec-22-17 09:30							
	Analyzed:	Jan-03-18 17:20						Dec-22-17 19:28				Dec-22-17 15:57							
	Units/RL:	mg/kg	RL					mg/kg	RL			mg/kg	RL						
Benzene		<0.0100	0.0100					12.0	0.198			0.00410	0.00201						
Toluene		<0.0100	0.0100					39.6	0.198			0.0117	0.00201						
Ethylbenzene		<0.0100	0.0100					34.1	0.198			0.0185	0.00201						
m,p-Xylenes		0.0535	0.0200					42.2	0.396			0.0310	0.00402						
o-Xylene		<0.0100	0.0100					16.5	0.198			0.0159	0.00201						
Total Xylenes		0.0535	0.0100					58.7	0.198			0.0469	0.00201						
Total BTEX		0.0535	0.0100					144	0.198			0.0812	0.00201						
TPH By SW8015 Mod	***Extracted:***	Jan-12-18 10:00		Jan-12-18 10:00		Jan-12-18 10:00		Dec-21-17 16:00				Dec-21-17 16:00							
	Analyzed:	Jan-12-18 19:54		Jan-13-18 07:09		Jan-13-18 06:49		Dec-22-17 08:58				Dec-22-17 09:18							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL			mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	4570	74.9			<15.0	15.0						
Diesel Range Organics (DRO)		19.7 K	15.0	<15.0	15.0	<15.0	15.0	6630	74.9			30.7	15.0						
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<15.0	15.0	1160	74.9			<15.0	15.0						
Total TPH		19.7 K	15.0	<15.0	15.0	<15.0	15.0	12400	74.9			30.7	15.0						

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: GJ West Coop Unit #210

Work Orders : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3036677 **Sample:** 571931-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 06:13

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.0	99.6	86	70-135	
o-Terphenyl	37.2	49.8	75	70-135	

Lab Batch #: 3036677 **Sample:** 571931-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 06:35

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.3	99.8	88	70-135	
o-Terphenyl	43.3	49.9	87	70-135	

Lab Batch #: 3036677 **Sample:** 571931-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 06:56

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.9	99.9	88	70-135	
o-Terphenyl	41.0	50.0	82	70-135	

Lab Batch #: 3036677 **Sample:** 571931-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 07:17

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.6	100	89	70-135	
o-Terphenyl	41.1	50.0	82	70-135	

Lab Batch #: 3036677 **Sample:** 571931-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 07:36

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.6	99.7	93	70-135	
o-Terphenyl	40.0	49.9	80	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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3036677 **Sample:** 571931-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 08:37

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.8	99.6	91	70-135	
o-Terphenyl	40.0	49.8	80	70-135	

Lab Batch #: 3036677 **Sample:** 571931-026 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 08:58

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.4	99.8	98	70-135	
o-Terphenyl	41.4	49.9	83	70-135	

Lab Batch #: 3036677 **Sample:** 571931-027 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 09:18

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.4	99.8	92	70-135	
o-Terphenyl	49.2	49.9	99	70-135	

Lab Batch #: 3036675 **Sample:** 571931-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 10:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0320	0.0300	107	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

Lab Batch #: 3036802 **Sample:** 571931-027 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 15:57

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

* 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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3036802 **Sample:** 571931-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 17:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0242	0.0300	81	80-120	
4-Bromofluorobenzene	0.0306	0.0300	102	80-120	

Lab Batch #: 3036802 **Sample:** 571931-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 18:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 3036802 **Sample:** 571931-019 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 19:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0334	0.0300	111	80-120	

Lab Batch #: 3036802 **Sample:** 571931-026 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 19:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

Lab Batch #: 3037056 **Sample:** 571931-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/27/17 07:26

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	80-120	
4-Bromofluorobenzene	0.0336	0.0300	112	80-120	

* 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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3037186 **Sample:** 571931-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/28/17 23:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0258	0.0300	86	80-120	

Lab Batch #: 3037361 **Sample:** 571931-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 17:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 3038189 **Sample:** 571931-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/11/18 01:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.4	99.1	78	70-135	
o-Terphenyl	38.6	49.6	78	70-135	

Lab Batch #: 3038189 **Sample:** 571931-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/11/18 02:17

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	81.1	99.5	82	70-135	
o-Terphenyl	40.9	49.8	82	70-135	

Lab Batch #: 3038189 **Sample:** 571931-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/11/18 02:39

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	73.2	99.9	73	70-135	
o-Terphenyl	36.9	50.0	74	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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3038189 **Sample:** 571931-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/11/18 03:01

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	72.5	99.2	73	70-135	
o-Terphenyl	35.5	49.6	72	70-135	

Lab Batch #: 3038189 **Sample:** 571931-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/11/18 03:23

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	81.8	99.1	83	70-135	
o-Terphenyl	40.2	49.6	81	70-135	

Lab Batch #: 3038390 **Sample:** 571931-020 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/12/18 19:54

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	76.5	100	77	70-135	
o-Terphenyl	39.8	50.0	80	70-135	

Lab Batch #: 3038391 **Sample:** 571931-022 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/13/18 06:49

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	75.9	100	76	70-135	
o-Terphenyl	40.0	50.0	80	70-135	

Lab Batch #: 3038391 **Sample:** 571931-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/13/18 07:09

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.7	100	79	70-135	
o-Terphenyl	41.1	50.0	82	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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3038511 **Sample:** 571931-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/17/18 01:10

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.9	99.7	79	70-135	
o-Terphenyl	41.0	49.9	82	70-135	

Lab Batch #: 3036675 **Sample:** 7636472-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 02:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0269	0.0300	90	80-120	
4-Bromofluorobenzene	0.0241	0.0300	80	80-120	

Lab Batch #: 3036677 **Sample:** 7636450-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 02:51

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.3	100	80	70-135	
o-Terphenyl	41.5	50.0	83	70-135	

Lab Batch #: 3036802 **Sample:** 7636560-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 13:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	80-120	
4-Bromofluorobenzene	0.0252	0.0300	84	80-120	

Lab Batch #: 3037056 **Sample:** 7636696-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/26/17 10:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0243	0.0300	81	80-120	

* 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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3037186 **Sample:** 7636780-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/28/17 16:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0276	0.0300	92	80-120	
4-Bromofluorobenzene	0.0251	0.0300	84	80-120	

Lab Batch #: 3037361 **Sample:** 7636913-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 15:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0242	0.0300	81	80-120	

Lab Batch #: 3038189 **Sample:** 7637441-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/10/18 18:14

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	83.0	100	83	70-135	
o-Terphenyl	41.9	50.0	84	70-135	

Lab Batch #: 3038390 **Sample:** 7637443-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/12/18 18:49

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.0	100	91	70-135	
o-Terphenyl	47.8	50.0	96	70-135	

Lab Batch #: 3038391 **Sample:** 7637444-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/13/18 04:48

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.8	100	95	70-135	
o-Terphenyl	49.9	50.0	100	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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3038511 **Sample:** 7637574-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/16/18 22:08

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.9	100	93	70-135	
o-Terphenyl	49.9	50.0	100	70-135	

Lab Batch #: 3036675 **Sample:** 7636472-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 00:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0299	0.0300	100	80-120	

Lab Batch #: 3036677 **Sample:** 7636450-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 03:10

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	77.3	100	77	70-135	
o-Terphenyl	40.7	50.0	81	70-135	

Lab Batch #: 3036802 **Sample:** 7636560-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 11:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 3037056 **Sample:** 7636696-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/26/17 08:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

* 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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3037186 **Sample:** 7636780-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/28/17 15:00

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

Lab Batch #: 3037361 **Sample:** 7636913-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 13:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0277	0.0300	92	80-120	

Lab Batch #: 3038189 **Sample:** 7637441-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/10/18 18:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.8	99.9	75	70-135	
o-Terphenyl	45.7	50.0	91	70-135	

Lab Batch #: 3038390 **Sample:** 7637443-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/12/18 19:11

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	79.5	100	80	70-135	
o-Terphenyl	47.6	50.0	95	70-135	

Lab Batch #: 3038391 **Sample:** 7637444-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/13/18 05:08

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.1	100	93	70-135	
o-Terphenyl	57.4	50.0	115	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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3038511 **Sample:** 7637574-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/16/18 22:31

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.7	100	91	70-135	
o-Terphenyl	44.6	50.0	89	70-135	

Lab Batch #: 3036675 **Sample:** 7636472-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 00:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 3036677 **Sample:** 7636450-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 03:32

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	79.2	100	79	70-135	
o-Terphenyl	41.8	50.0	84	70-135	

Lab Batch #: 3036802 **Sample:** 7636560-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/22/17 11:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 3037056 **Sample:** 7636696-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/26/17 08:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0341	0.0300	114	80-120	
4-Bromofluorobenzene	0.0339	0.0300	113	80-120	

* 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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3037186 **Sample:** 7636780-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/28/17 15:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0288	0.0300	96	80-120	

Lab Batch #: 3037361 **Sample:** 7636913-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/03/18 13:57

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0284	0.0300	95	80-120	

Lab Batch #: 3038189 **Sample:** 7637441-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/10/18 18:55

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.1	99.8	82	70-135	
o-Terphenyl	47.6	49.9	95	70-135	

Lab Batch #: 3038391 **Sample:** 7637444-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/13/18 05:29

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.1	100	92	70-135	
o-Terphenyl	55.8	50.0	112	70-135	

Lab Batch #: 3038511 **Sample:** 7637574-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 01/16/18 22:54

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.7	100	89	70-135	
o-Terphenyl	44.6	50.0	89	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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3036675 **Sample:** 571798-009 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 00:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	80-120	
4-Bromofluorobenzene	0.0303	0.0300	101	80-120	

Lab Batch #: 3036677 **Sample:** 571800-013 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 04:14

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	74.4	99.8	75	70-135	
o-Terphenyl	40.5	49.9	81	70-135	

Lab Batch #: 3036802 **Sample:** 571876-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 11:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0313	0.0300	104	80-120	
4-Bromofluorobenzene	0.0329	0.0300	110	80-120	

Lab Batch #: 3037056 **Sample:** 572035-035 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/26/17 09:09

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	80-120	
4-Bromofluorobenzene	0.0277	0.0300	92	80-120	

Lab Batch #: 3037186 **Sample:** 572178-011 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/28/17 15:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	80-120	

* 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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3037361 **Sample:** 572446-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 14:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0340	0.0300	113	80-120	

Lab Batch #: 3038189 **Sample:** 572901-019 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/10/18 19:35

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.2	99.6	90	70-135	
o-Terphenyl	51.0	49.8	102	70-135	

Lab Batch #: 3038390 **Sample:** 573261-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/13/18 02:42

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.1	100	85	70-135	
o-Terphenyl	50.3	50.0	101	70-135	

Lab Batch #: 3038391 **Sample:** 572902-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/13/18 06:09

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	78.8	100	79	70-135	
o-Terphenyl	43.4	50.0	87	70-135	

Lab Batch #: 3038511 **Sample:** 572902-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/16/18 23:40

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.1	99.8	85	70-135	
o-Terphenyl	36.0	49.9	72	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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3036675 **Sample:** 571798-009 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 01:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0324	0.0300	108	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

Lab Batch #: 3036677 **Sample:** 571800-013 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 04:34

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.6	99.9	83	70-135	
o-Terphenyl	43.6	50.0	87	70-135	

Lab Batch #: 3036802 **Sample:** 571876-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/22/17 12:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0322	0.0300	107	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 3037056 **Sample:** 572035-035 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/26/17 09:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

Lab Batch #: 3037186 **Sample:** 572178-011 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/28/17 15:57

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0338	0.0300	113	80-120	
4-Bromofluorobenzene	0.0352	0.0300	117	80-120	

* 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 : 571931,

Project ID: 212C-MD-01056.300

Lab Batch #: 3037361 **Sample:** 572446-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/03/18 14:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 3038189 **Sample:** 572901-019 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/10/18 19:56

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	79.9	99.5	80	70-135	
o-Terphenyl	46.4	49.8	93	70-135	

Lab Batch #: 3038390 **Sample:** 573261-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/13/18 03:03

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.2	100	88	70-135	
o-Terphenyl	40.7	50.0	81	70-135	

Lab Batch #: 3038391 **Sample:** 572902-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/13/18 06:29

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	80.7	100	81	70-135	
o-Terphenyl	39.5	50.0	79	70-135	

Lab Batch #: 3038511 **Sample:** 572902-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 01/17/18 00:03

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	83.4	100	83	70-135	
o-Terphenyl	38.5	50.0	77	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.

Blank Spike Recovery

Project Name: GJ West Coop Unit #210

Work Order #: 571931 **Project ID:** 212C-MD-01056.300

Lab Batch #: 3038390 **Sample:** 7637443-1-BKS **Matrix:** Solid

Date Analyzed: 01/12/2018 **Date Prepared:** 01/12/2018 **Analyst:** ALJ

Reporting Units: mg/kg **Batch #:** 1

BLANK /BLANK SPIKE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	862	86	70-135	
Diesel Range Organics (DRO)	<15.0	1000	861	86	70-135	

Blank Spike Recovery [D] = 100*[C]/[B]
All results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

BS / BSD Recoveries

Project Name: GJ West Coop Unit #210

Work Order #: 571931 **Project ID:** 212C-MD-01056.300

Analyst: ALJ **Date Prepared:** 12/21/2017 **Date Analyzed:** 12/22/2017

Lab Batch ID: 3036675 **Sample:** 7636472-1-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	<0.00200	0.0998	0.0872	87	0.100	0.0854	85	2	70-130	35	
Toluene	<0.00200	0.0998	0.0805	81	0.100	0.0788	79	2	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.0871	87	0.100	0.0848	85	3	71-129	35	
m,p-Xylenes	<0.00399	0.200	0.172	86	0.201	0.167	83	3	70-135	35	
o-Xylene	<0.00200	0.0998	0.0824	83	0.100	0.0798	80	3	71-133	35	

Analyst: ALJ **Date Prepared:** 12/22/2017 **Date Analyzed:** 12/22/2017

Lab Batch ID: 3036802 **Sample:** 7636560-1-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	<0.00198	0.0990	0.0915	92	0.0994	0.0894	90	2	70-130	35	
Toluene	<0.00198	0.0990	0.0852	86	0.0994	0.0831	84	2	70-130	35	
Ethylbenzene	<0.00198	0.0990	0.0925	93	0.0994	0.0913	92	1	71-129	35	
m,p-Xylenes	<0.00396	0.198	0.182	92	0.199	0.180	90	1	70-135	35	
o-Xylene	<0.00198	0.0990	0.0851	86	0.0994	0.0849	85	0	71-133	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

BS / BSD Recoveries

Project Name: GJ West Coop Unit #210

Work Order #: 571931 **Project ID:** 212C-MD-01056.300

Analyst: ALJ **Date Prepared:** 12/26/2017 **Date Analyzed:** 12/26/2017

Lab Batch ID: 3037056 **Sample:** 7636696-1-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	0.0748	75	0.100	0.0752	75	1	70-130	35	
Toluene	<0.00199	0.0996	0.0748	75	0.100	0.0765	77	2	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.0759	76	0.100	0.0777	78	2	71-129	35	
m,p-Xylenes	<0.00398	0.199	0.161	81	0.201	0.160	80	1	70-135	35	
o-Xylene	<0.00199	0.0996	0.0773	78	0.100	0.0791	79	2	71-133	35	

Analyst: ALJ **Date Prepared:** 12/28/2017 **Date Analyzed:** 12/28/2017

Lab Batch ID: 3037186 **Sample:** 7636780-1-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	<0.00200	0.0998	0.0872	87	0.100	0.0836	84	4	70-130	35	
Toluene	<0.00200	0.0998	0.0823	82	0.100	0.0788	79	4	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.0931	93	0.100	0.0888	89	5	71-129	35	
m,p-Xylenes	<0.00399	0.200	0.184	92	0.200	0.175	88	5	70-135	35	
o-Xylene	<0.00200	0.0998	0.0858	86	0.100	0.0820	82	5	71-133	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

BS / BSD Recoveries

Project Name: GJ West Coop Unit #210

Work Order #: 571931 **Project ID:** 212C-MD-01056.300

Analyst: ALJ **Date Prepared:** 01/03/2018 **Date Analyzed:** 01/03/2018

Lab Batch ID: 3037361 **Sample:** 7636913-1-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	<0.00202	0.101	0.0894	89	0.100	0.0877	88	2	70-130	35	
Toluene	<0.00202	0.101	0.0840	83	0.100	0.0825	83	2	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0941	93	0.100	0.0914	91	3	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.185	92	0.201	0.180	90	3	70-135	35	
o-Xylene	<0.00202	0.101	0.0865	86	0.100	0.0846	85	2	71-133	35	

Analyst: ARM **Date Prepared:** 12/21/2017 **Date Analyzed:** 12/22/2017

Lab Batch ID: 3036677 **Sample:** 7636450-1-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	813	81	1000	851	85	5	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	845	85	1000	866	87	2	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

BS / BSD Recoveries

Project Name: GJ West Coop Unit #210

Work Order #: 571931 **Project ID:** 212C-MD-01056.300

Analyst: ALJ **Date Prepared:** 01/10/2018 **Date Analyzed:** 01/10/2018

Lab Batch ID: 3038189 **Sample:** 7637441-1-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	999	851	85	998	855	86	0	70-135	35	
Diesel Range Organics (DRO)	<15.0	999	802	80	998	838	84	4	70-135	35	

Analyst: ALJ **Date Prepared:** 01/12/2018 **Date Analyzed:** 01/13/2018

Lab Batch ID: 3038391 **Sample:** 7637444-1-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	1040	104	1000	993	99	5	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	1040	104	1000	1020	102	2	70-135	35	

Analyst: ARM **Date Prepared:** 01/16/2018 **Date Analyzed:** 01/16/2018

Lab Batch ID: 3038511 **Sample:** 7637574-1-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	923	92	1000	866	87	6	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	974	97	1000	925	93	5	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 # : 571931 **Project ID:** 212C-MD-01056.300

Lab Batch ID: 3036675 **QC- Sample ID:** 571798-009 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/22/2017 **Date Prepared:** 12/21/2017 **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	<0.00201	0.100	0.0767	77	0.101	0.0767	76	0	70-130	35	
Toluene	<0.00201	0.100	0.0707	71	0.101	0.0702	70	1	70-130	35	
Ethylbenzene	<0.00201	0.100	0.0745	75	0.101	0.0747	74	0	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.146	73	0.202	0.147	73	1	70-135	35	
o-Xylene	<0.00201	0.100	0.0694	69	0.101	0.0702	70	1	71-133	35	X

Lab Batch ID: 3036802 **QC- Sample ID:** 571876-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/22/2017 **Date Prepared:** 12/22/2017 **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	<0.00198	0.0990	0.0745	75	0.0994	0.0688	69	8	70-130	35	X
Toluene	<0.00198	0.0990	0.0674	68	0.0994	0.0613	62	9	70-130	35	X
Ethylbenzene	<0.00198	0.0990	0.0717	72	0.0994	0.0652	66	9	71-129	35	X
m,p-Xylenes	<0.00396	0.198	0.141	71	0.199	0.128	64	10	70-135	35	X
o-Xylene	<0.00198	0.0990	0.0666	67	0.0994	0.0614	62	8	71-133	35	X

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 # : 571931 **Project ID:** 212C-MD-01056.300

Lab Batch ID: 3037056 **QC- Sample ID:** 572035-035 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/26/2017 **Date Prepared:** 12/26/2017 **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	<0.00202	0.101	0.0474	47	0.100	0.0528	53	11	70-130	35	X
Toluene	<0.00202	0.101	0.0426	42	0.100	0.0490	49	14	70-130	35	X
Ethylbenzene	<0.00202	0.101	0.0477	47	0.100	0.0538	54	12	71-129	35	X
m,p-Xylenes	<0.00403	0.202	0.0942	47	0.200	0.107	54	13	70-135	35	X
o-Xylene	<0.00202	0.101	0.0459	45	0.100	0.0504	50	9	71-133	35	X

Lab Batch ID: 3037186 **QC- Sample ID:** 572178-011 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/28/2017 **Date Prepared:** 12/28/2017 **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	<0.00200	0.100	0.0968	97	0.101	0.0871	86	11	70-130	35	
Toluene	<0.00200	0.100	0.0873	87	0.101	0.0760	75	14	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0887	89	0.101	0.0821	81	8	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.174	87	0.201	0.162	81	7	70-135	35	
o-Xylene	<0.00200	0.100	0.0829	83	0.101	0.0776	77	7	71-133	35	

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 # : 571931 **Project ID:** 212C-MD-01056.300

Lab Batch ID: 3037361 **QC- Sample ID:** 572446-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/03/2018 **Date Prepared:** 01/03/2018 **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	<0.00200	0.100	0.0693	69	0.0998	0.0670	67	3	70-130	35	X
Toluene	<0.00200	0.100	0.0615	62	0.0998	0.0588	59	4	70-130	35	X
Ethylbenzene	0.00532	0.100	0.0736	68	0.0998	0.0717	67	3	71-129	35	X
m,p-Xylenes	0.00481	0.200	0.141	68	0.200	0.138	67	2	70-135	35	X
o-Xylene	<0.00200	0.100	0.0662	66	0.0998	0.0647	65	2	71-133	35	X

Lab Batch ID: 3036677 **QC- Sample ID:** 571800-013 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/22/2017 **Date Prepared:** 12/21/2017 **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	998	823	82	999	830	83	1	70-135	35	
Diesel Range Organics (DRO)	<15.0	998	851	85	999	853	85	0	70-135	35	

Lab Batch ID: 3038189 **QC- Sample ID:** 572901-019 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/10/2018 **Date Prepared:** 01/10/2018 **Analyst:** ALJ

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)	<14.9	996	795	80	995	798	80	0	70-135	35	
Diesel Range Organics (DRO)	<14.9	996	779	78	995	788	79	1	70-135	35	

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 # : 571931 **Project ID:** 212C-MD-01056.300

Lab Batch ID: 3038390 **QC- Sample ID:** 573261-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/13/2018 **Date Prepared:** 01/12/2018 **Analyst:** ALJ

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)	23.0	1000	796	77	1000	831	81	4	70-135	35	
Diesel Range Organics (DRO)	120	1000	856	74	1000	870	75	2	70-135	35	

Lab Batch ID: 3038391 **QC- Sample ID:** 572902-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/13/2018 **Date Prepared:** 01/12/2018 **Analyst:** ALJ

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	1000	687	69	1000	703	70	2	70-135	35	X
Diesel Range Organics (DRO)	<15.0	1000	725	73	1000	742	74	2	70-135	35	

Lab Batch ID: 3038511 **QC- Sample ID:** 572902-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 01/16/2018 **Date Prepared:** 01/16/2018 **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	998	836	84	1000	837	84	0	70-135	35	
Diesel Range Organics (DRO)	<15.0	998	965	97	1000	964	96	0	70-135	35	

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.

Analysis Request of Chain of Custody Record

Page 1 of 4

Tetra Tech, Inc.

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

571931

Client Name: COG

Site Manager: Ike Tavarez

Project Name: GJ West Coop Unit #210

Project Location (county, state): Eddy Co NM

Project #: 212C-MD-01056.300

Invoice to: COG

Receiving Laboratory: Xenco

Sampler Signature: Ike Tavarez

Comments: Run deeper samples if benzene exceeds 10 mg/kg, total BTEX exceeds 50mg/kg or TPH exceeds 1,000 mg/kg

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	# CONTAINERS	FILTERED (Y/N)
	BH-1 0-1	12/20/17			X			X	1	
	" 2-3				X			X	1	
	" 4-5				X			X	1	
	" 6-7				X			X	1	
	" 9-10				X			X	1	
	" 14-15				X			X	1	
	" 19-20				X			X	1	
	" 24-25				X			X	1	
	BH-2 0-1	12/21/17			X			X	1	
	" 2-3	"			X			X	1	

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

Relinquished by: Ike Tavarez Date: 12/21/17 Time: 1448
Received by: J KRAMER Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

Relinquished by: Date: Time:
Received by: Date: Time:

LAB USE ONLY
Sample Temperature
(Circle) HAND

REMARKS:
RUSH: Same Day 24 hr 48 hr 72 hr
Rush Charges Authorized

Temp: 0.8 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: -1.0

ORIGINAL COPY

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

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

571931

Client Name: COG

Site Manager: Ike Tavarez

Project Name: GJ West Coop Unit #210

Project Location: (county, state) Eddy Co NM

Project #: 212C-MD-01056.300

Invoice to: COG

Receiving Laboratory:

Sampler Signature:

Comments: See page 1

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B	BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	BH-2 4-5	12/21/17			X			X																						
	" 6-7																													
	" 9-10																													
	" 14-15																													
	" 19-20																													
	" 24-25																													
	" 29-30																													
	BH-3 0-1											X	X																	
	" 2-3											X	X																	
	" 4-5																													

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: Date: 12/21/17 Time: 1448

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature

(Circle) HAND

REMARKS:

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

Temp: 0.8 IR ID: IR-8

CF: (0-6: -0.2°C)
(6-23: +0.2°C)

Corrected Temp: -1.0

ORIGINAL COPY

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

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

571931

Client Name: COG

Site Manager: Ike Tavarez

Project Name: GJ West Coop Unit #210

Project Location: (county, state) Eddy Co NM

Project #: 212C-MD-01056.300

Invoice to: COG

Receiving Laboratory:

Sampler Signature:

Comments: see page 1

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B (BTEX 8260B)	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	BH-3 6-7	12/21/17			X			X																					
	" 9-10																												
	" 14-15																												
	" 19-20																												
	" 24-25																												
	BH-4 0-1										X		X																
	" 2-3										X		X																
	" 4-5																												
	" 6-7																												
	" 9-10																												

ANALYSIS REQUEST
(Circle or Specify Method No.)

Relinquished by: Date: 12/21/17 Time: 1448

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature

(Circle) H

REMARKS:

RUSH: Same Day 24 hr 48 hr 72 hr

Rush Charges Authorized

Temp: -0.8 IR ID:R-8

CF:(0-6: -0.2°C)
(6-23: +0.2°C)

Corrected Temp: -1.0

ORIGINAL COPY

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

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

571931

Client Name: COG

Site Manager: Ike Tavarez

Project Name: GJ West Coop Unit #210

Project Location: (county, state) Eddy Co NM

Project #: 212C-MD-01056.300

Invoice to: COG

Receiving Laboratory:

Sampler Signature:

Comments: Seepage I

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	# CONTAINERS	FILTERED (Y/N)
	BH-4 14-15	12/21/17			X			X		
	" 19-20				X			X		
	" 24-25				X			X		

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	12/21/17	1448			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

(Circle) HAI

REMARKS:

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

Temp: -0.8 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: -1.0

ORIGINAL COPY

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 12/21/2017 02:48:00 PM

Work Order #: 571931

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

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

Analyst:

PH Device/Lot#:

Checklist completed by: Shawnee Smith Date: 12/21/2017

Shawnee Smith

Checklist reviewed by: Kelsey Brooks Date: 12/27/2017

Kelsey Brooks

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				

Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

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

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 Bttm	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

Version: 1.%

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**	Matrix:	Soil	Date Received:	03.07.18 11.00
Lab Sample Id:	578424-001	Date Collected:	03.05.18 10.00	Sample Depth:	4' - 2 In

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	<24.6	24.6	mg/kg	03.08.18 15.02	U	5

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 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**	Matrix:	Soil	Date Received:	03.07.18 11.00
Lab Sample Id:	578424-001	Date Collected:	03.05.18 10.00	Sample Depth:	4' - 2 In
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 11.35	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	

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

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 — Prep Method: E300P
Seq Number: 3043151 — Matrix: Solid — Date Prep: 03.08.18
MB Sample Id: 7640419-1-BLK — LCS Sample Id: 7640419-1-BKS — LCSD Sample Id: 7640419-1-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	248	99	249	100	90-110	0	20	mg/kg	03.08.18 14:25	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3043151 — Matrix: Soil — Date Prep: 03.08.18
Parent Sample Id: 578424-003 — MS Sample Id: 578424-003 S — MSD Sample Id: 578424-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	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 — Prep Method: E300P
Seq Number: 3043151 — Matrix: Soil — Date Prep: 03.08.18
Parent Sample Id: 578425-005 — MS Sample Id: 578425-005 S — MSD Sample Id: 578425-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	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 — Prep Method: TX1005P
Seq Number: 3043122 — Matrix: Solid — Date Prep: 03.07.18
MB Sample Id: 7640359-1-BLK — LCS Sample Id: 7640359-1-BKS — LCSD Sample Id: 7640359-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	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

Final 1.000

QC Summary 578424

COG Operating LLC

GJ West Coop Unit #210

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3043122 — Matrix: Soil — Date Prep: 03.07.18
Parent Sample Id: 578424-001 — MS Sample Id: 578424-001 S — MSD Sample Id: 578424-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	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 — Prep Method: SW5030B
Seq Number: 3043124 — Matrix: Solid — Date Prep: 03.08.18
MB Sample Id: 7640418-1-BLK — LCS Sample Id: 7640418-1-BKS — LCSD Sample Id: 7640418-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0766	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 — Prep Method: SW5030B
Seq Number: 3043124 — Matrix: Soil — Date Prep: 03.08.18
Parent Sample Id: 578423-001 — MS Sample Id: 578423-001 S — MSD Sample Id: 578423-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	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

Final 1.000

CHAIN OF CUSTODY

Page –1– Of –1–

XENCO LABORATORIES
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Phoenix, Arizona (480-355-0900)
www.xenco.com

Xenco Quote #

Xenco Job # 578424

Client / Reporting Information

Company Name / Branch: COG Operating LLC

Company Address: 2407 Pecos Ave. Artesia NM 88210

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

Phone No: 575-746-2010

Project Contact: Sheldon Hitchcock

Samplers's Name Dakota Neel

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. Illinois Ave., Midland TX, 79701

PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	None	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDE (EPA 300)	Field Comments
1	S1 Bttm	4' 2 "	3/5/2018	10:00 AM	S	1								✓	X	X	X	
2	S1 E. Sidewall	N/A	3/5/2018	10:05 AM	S	1								✓	X	X	X	
3	S1 W. Sidewall	N/A	3/5/2018	10:10 AM	S	1								✓	X	X	X	
4	S1 S. Sidewall	N/A	3/5/2018	10:15 AM	S	1								✓	X	X	X	
5																		
6																		
7																		
8																		
9																		
10																		

Temp: 3.1 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 2.9

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

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		3-6-18 1435		2	3-6-18 1700	2
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
			5	4		4 3/7 11:00

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

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**	TPH received in bulk jars
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Connie Hernandez Date: 03/07/2018

Connie Hernandez

Checklist reviewed by: Jessica Kramer Date: 03/08/2018

Jessica Kramer

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

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

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			

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

Mike Kimmel
Client Services Manager

Final 1.000

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

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

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

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www.xenco.com

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	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3						3/2/18 11:5
4	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
5						

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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 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

Jessica Kramer

Analytical Report 578037

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): **578037**
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) 578037. 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. 578037 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

Jessica Kramer
Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
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Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 578037

COG Operating LLC, Artesia, NM

GJ West COOP Unit#210

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-3 BTTM	S	02-28-18 11:00	4' - 2"	578037-001
S-3 E. Sidewall	S	02-28-18 11:10		578037-002
S-3 W. Sidewall	S	02-28-18 11:20		578037-003

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: GJ West COOP Unit#210

Project ID:
Work Order Number(s): *578037*

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

Lab Sample ID 578037-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, m,p-Xylenes recovered below QC limits in the Matrix Spike. Benzene, Toluene 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: 578037-001, -002, -003.

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

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

Certificate of Analysis Summary 578037

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:	578037-001		578037-002		578037-003				
	Field Id:	S-3 BTTM		S-3 E. Sidewall		S-3 W. Sidewall				
	Depth:	4'-2"								
	Matrix:	SOIL		SOIL		SOIL				
	Sampled:	Feb-28-18 11:00		Feb-28-18 11:10		Feb-28-18 11:20				
BTEX by EPA 8021B	***Extracted:***	Mar-03-18 08:00		Mar-03-18 08:00		Mar-03-18 08:00				
	Analyzed:	Mar-03-18 11:15		Mar-03-18 16:39		Mar-03-18 16:58				
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL			
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199			
Toluene		0.0122	0.00200	<0.00199	0.00199	<0.00199	0.00199			
Ethylbenzene		0.00447	0.00200	<0.00199	0.00199	<0.00199	0.00199			
m,p-Xylenes		0.00812	0.00401	<0.00398	0.00398	<0.00398	0.00398			
o-Xylene		0.00412	0.00200	<0.00199	0.00199	<0.00199	0.00199			
Total Xylenes		0.0122	0.00200	<0.00199	0.00199	<0.00199	0.00199			
Total BTEX		0.0289	0.00200	<0.00199	0.00199	<0.00199	0.00199			
Chloride by EPA 300	***Extracted:***	Mar-02-18 16:00		Mar-02-18 16:00		Mar-02-18 16:00				
	Analyzed:	Mar-03-18 01:13		Mar-03-18 01:19		Mar-03-18 01:24				
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL			
Chloride		13.7	4.99	22.8	5.00	47.0	4.98			
TPH by SW8015 Mod	***Extracted:***	Mar-02-18 18:00		Mar-02-18 18:00		Mar-02-18 18:00				
	Analyzed:	Mar-03-18 08:00		Mar-03-18 08:19		Mar-03-18 08:41				
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL			
Gasoline Range Hydrocarbons (GRO)		<14.9	14.9	<15.0	15.0	<15.0	15.0			
Diesel Range Organics (DRO)		<14.9	14.9	<15.0	15.0	<15.0	15.0			
Oil Range Hydrocarbons (ORO)		<14.9	14.9	<15.0	15.0	<15.0	15.0			
Total TPH		<14.9	14.9	<15.0	15.0	<15.0	15.0			

Jessica Kramer
Project Assistant

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 : 578037,

Project ID:

Lab Batch #: 3042782 **Sample:** 578037-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 08:00

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.9	99.6	99	70-135	
o-Terphenyl	50.4	49.8	101	70-135	

Lab Batch #: 3042782 **Sample:** 578037-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 08:19

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	99.8	105	70-135	
o-Terphenyl	52.2	49.9	105	70-135	

Lab Batch #: 3042782 **Sample:** 578037-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 08:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.4	99.9	96	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

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

Units: mg/kg **Date Analyzed:** 03/03/18 11:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	70-130	
4-Bromofluorobenzene	0.0322	0.0300	107	70-130	

Lab Batch #: 3042714 **Sample:** 578037-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 16:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0245	0.0300	82	70-130	
4-Bromofluorobenzene	0.0317	0.0300	106	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 : 578037,

Project ID:

Lab Batch #: 3042714 **Sample:** 578037-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 16:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0237	0.0300	79	70-130	
4-Bromofluorobenzene	0.0304	0.0300	101	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 : 578037,

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 : 578037,

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 #: 578037 **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 #: 578037 **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 # : 578037 **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 # : 578037 **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

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Xenco Quote #
Xenco Job # 578037

Client / Reporting Information

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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:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	ICE	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments
1	S-3 BTTM	4' 2"	2/28/2018	11:00	S	1								X	X	X	X	
2	S-3 E. SIDEWALL	N/A	2/28/2018	11:10	S	1								X	X	X	X	
3	S-3 W. SIDEWALL	N/A	2/28/2018	11:20	S	1								X	X	X	X	
4					S	1												
5					S	1												
6					S	1												
7					S	1												
8					S	1												
9					S	1												
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:

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	Espeya Gonzalez	Espeya Gonzalez	3-1-18 3:32	
2	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By: 3/2/18 11:5
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	
5						

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

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 not be responsible for 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 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: 03/02/2018 11:50:00 AM

Work Order #: 578037

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

Jessica Kramer

Certificate of Analysis Summary 577421

COG Operating LLC, Artesia, NM

Project Name: GJ West Loop Unit 210

Project Id:

Contact: Sheldon Hitchcock

Project Location:

Date Received in Lab: Mon Feb-26-18 07:45 am

Report Date: 27-FEB-18

Project Manager: Jessica Kramer

Analysis Requested								
	Lab Id:	577421-001						
	Field Id:	S4-Bottom Hole						
	Depth:	2.5- ft						
	Matrix:	SOIL						
	Sampled:	Feb-23-18 11:00						
BTEX by EPA 8021B	***Extracted:***	Feb-26-18 10:00						
	Analyzed:	Feb-26-18 14:04						
	Units/RL:	mg/kg	RL					
Benzene		<0.00199	0.00199					
Toluene		<0.00199	0.00199					
Ethylbenzene		<0.00199	0.00199					
m,p-Xylenes		0.00414	0.00398					
o-Xylene		<0.00199	0.00199					
Total Xylenes		0.00414	0.00199					
Total BTEX		0.00414	0.00199					
Chloride by EPA 300	***Extracted:***	Feb-26-18 14:00						
	Analyzed:	Feb-26-18 21:36						
	Units/RL:	mg/kg	RL					
Chloride		153	4.90					
TPH By SW8015 Mod	***Extracted:***	Feb-26-18 08:00						
	Analyzed:	Feb-26-18 10:34						
	Units/RL:	mg/kg	RL					
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0					
Diesel Range Organics (DRO)		<15.0	15.0					
Oil Range Hydrocarbons (ORO)		<15.0	15.0					
Total TPH		<15.0	15.0					

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

Version: 1.%

Jessica Kramer
Project Assistant

Final 1.000

Analytical Report 577421

for

COG Operating LLC

Project Manager: Sheldon Hitchcock

GJ West Loop Unit 210

27-FEB-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

27-FEB-18

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

Reference: XENCO Report No(s): **577421**
GJ West Loop Unit 210
Project Address:

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) 577421. 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. 577421 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

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 577421

COG Operating LLC, Artesia, NM

GJ West Loop Unit 210

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S4-Bottom Hole	S	02-23-18 11:00	2.5 ft	577421-001

Version: 1.%

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: GJ West Loop Unit 210

Project ID:
Work Order Number(s): *577421*

Report Date: *27-FEB-18*
Date Received: *02/26/2018*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3042157 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Lab Sample ID 577421-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Toluene recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 577421-001.
The Laboratory Control Sample for Toluene, Benzene is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 577421

COG Operating LLC, Artesia, NM

GJ West Loop Unit 210

Sample Id:	**S4-Bottom Hole**	Matrix:	Soil	Date Received:	02.26.18 07.45
Lab Sample Id:	577421-001	Date Collected:	02.23.18 11.00	Sample Depth:	2.5 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	OJS			% Moisture:	
Analyst:	OJS	Date Prep:	02.26.18 14.00	Basis:	Wet Weight
Seq Number:	3042243				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**153**	4.90	mg/kg	02.26.18 21.36		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.26.18 08.00	Basis:	Wet Weight
Seq Number:	3042219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.26.18 10.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.26.18 10.34	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.26.18 10.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.26.18 10.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	02.26.18 10.34	
o-Terphenyl	84-15-1	96	%	70-135	02.26.18 10.34	

Certificate of Analytical Results 577421

COG Operating LLC, Artesia, NM

GJ West Loop Unit 210

Sample Id:	**S4-Bottom Hole**	Matrix:	Soil	Date Received:	02.26.18 07.45
Lab Sample Id:	577421-001	Date Collected:	02.23.18 11.00	Sample Depth:	2.5 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	02.26.18 10.00	Basis:	Wet Weight
Seq Number:	3042157				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.26.18 14.04	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.26.18 14.04	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.26.18 14.04	U	1
m,p-Xylenes	179601-23-1	**0.00414**	0.00398	mg/kg	02.26.18 14.04		1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.26.18 14.04	U	1
Total Xylenes	1330-20-7	**0.00414**	0.00199	mg/kg	02.26.18 14.04		1
Total BTEX		**0.00414**	0.00199	mg/kg	02.26.18 14.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	111	%	80-120	02.26.18 14.04	
1,4-Difluorobenzene	540-36-3	81	%	80-120	02.26.18 14.04	

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

QC Summary 577421

COG Operating LLC

GJ West Loop Unit 210

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3042243 — Matrix: Solid — Date Prep: 02.26.18
MB Sample Id: 7639810-1-BLK — LCS Sample Id: 7639810-1-BKS — LCSD Sample Id: 7639810-1-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	262	105	262	105	90-110	0	20	mg/kg	02.26.18 19:35	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3042243 — Matrix: Soil — Date Prep: 02.26.18
Parent Sample Id: 577014-031 — MS Sample Id: 577014-031 S — MSD Sample Id: 577014-031 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	596	250	835	96	859	105	90-110	3	20	mg/kg	02.26.18 19:51	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3042243 — Matrix: Soil — Date Prep: 02.26.18
Parent Sample Id: 577094-006 — MS Sample Id: 577094-006 S — MSD Sample Id: 577094-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.05	253	268	106	282	111	90-110	5	20	mg/kg	02.26.18 21:05	X

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3042219 — Matrix: Solid — Date Prep: 02.26.18
MB Sample Id: 7639805-1-BLK — LCS Sample Id: 7639805-1-BKS — LCSD Sample Id: 7639805-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	887	89	1020	102	70-135	14	35	mg/kg	02.26.18 09:41	
Diesel Range Organics (DRO)	<15.0	1000	915	92	1040	104	70-135	13	35	mg/kg	02.26.18 09:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		109		124		70-135	%	02.26.18 09:41
o-Terphenyl	112		107		121		70-135	%	02.26.18 09:41

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

Final 1.000

QC Summary 577421

COG Operating LLC

GJ West Loop Unit 210

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3042219 — Matrix: Soil — Date Prep: 02.26.18
Parent Sample Id: 577421-001 — MS Sample Id: 577421-001 S — MSD Sample Id: 577421-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	999	971	97	907	91	70-135	7	35	mg/kg	02.26.18 11:02	
Diesel Range Organics (DRO)	<15.0	999	1070	107	1000	100	70-135	7	35	mg/kg	02.26.18 11:02	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		107		70-135	%	02.26.18 11:02
o-Terphenyl	113		107		70-135	%	02.26.18 11:02

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3042157 — Matrix: Solid — Date Prep: 02.26.18
MB Sample Id: 7639793-1-BLK — LCS Sample Id: 7639793-1-BKS — LCSD Sample Id: 7639793-1-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	0.0931	93	0.0925	93	70-130	1	35	mg/kg	02.26.18 09:57	
Toluene	<0.00199	0.0996	0.0994	100	0.0979	98	70-130	2	35	mg/kg	02.26.18 09:57	
Ethylbenzene	<0.00199	0.0996	0.115	115	0.113	113	71-129	2	35	mg/kg	02.26.18 09:57	
m,p-Xylenes	<0.00398	0.199	0.230	116	0.226	113	70-135	2	35	mg/kg	02.26.18 09:57	
o-Xylene	<0.00199	0.0996	0.112	112	0.110	110	71-133	2	35	mg/kg	02.26.18 09:57	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	82		81		84		80-120	%	02.26.18 09:57
4-Bromofluorobenzene	110		120		116		80-120	%	02.26.18 09:57

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3042157 — Matrix: Soil — Date Prep: 02.26.18
Parent Sample Id: 577421-001 — MS Sample Id: 577421-001 S — MSD Sample Id: 577421-001 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	0.100	0.0638	64	0.0720	72	70-130	12	35	mg/kg	02.26.18 10:36	X
Toluene	<0.00200	0.100	0.0679	68	0.0750	75	70-130	10	35	mg/kg	02.26.18 10:36	X
Ethylbenzene	<0.00200	0.100	0.0787	79	0.0845	85	71-129	7	35	mg/kg	02.26.18 10:36	
m,p-Xylenes	0.00414	0.200	0.155	75	0.170	83	70-135	9	35	mg/kg	02.26.18 10:36	
o-Xylene	<0.00200	0.100	0.0745	75	0.0856	86	71-133	14	35	mg/kg	02.26.18 10:36	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	80		82		80-120	%	02.26.18 10:36
4-Bromofluorobenzene	103		117		80-120	%	02.26.18 10:36

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

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

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

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

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

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Xenco Quote #
Xenco Job # 577421

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~~ D. Neel

Project Information

Project Name/Number: GJ WEST COOP UNIT 210
Project Location:
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

Analytical Information

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments
1	54 - BOTTOM HOLE	2.5'	7/23/18	11:00AM	S	1									X	X	X	
2					S	1												
3					S	1												
4					S	1												
5					S	1												
6					S	1												
7					S	1												
8					S	1												
9					S	1												
10					S	1												

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

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:

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	D Neel	2-23-18 1:00 PM	Sid Butler	Sid Butler	2-23-18 245p	CRAMER 2.26 745
2	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3						
4	Relinquished by:	Date Time:	Received By:			
5						

Temp: 1.6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 1.4

On Ice: X | 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 subcont 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 proj be enforced unless previously negotiated under a fully executed client contract.

for the cost of samples and shall not assume any responsibility for any enco but not analyzed will be invoiced at $5 per sample. These terms will

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 02/26/2018 07:45:00 AM

Work Order #: 577421

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)?	1.4
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Katie Lowe Date: 02/26/2018

Checklist reviewed by: Jessica Kramer Date: 02/26/2018

Jessica Kramer

Analytical Report 578036

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): **578036**
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) 578036. 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. 578036 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

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

Sample Cross Reference 578036

COG Operating LLC, Artesia, NM

GJ West COOP Unit#210

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-4 E. Sidewall	S	02-28-18 10:00		578036-001
S-4 W. Sidewall	S	02-28-18 10:10		578036-002
N. Sidewall	S	02-28-18 10:30		578036-003

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: GJ West COOP Unit#210

Project ID:
Work Order Number(s): *578036*

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.

Certificate of Analysis Summary 578036

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:	578036-001		578036-002		578036-003			
	Field Id:	S-4 E. Sidewall		S-4 W. Sidewall		N. Sidewall			
	Depth:								
	Matrix:	SOIL		SOIL		SOIL			
	Sampled:	Feb-28-18 10:00		Feb-28-18 10:10		Feb-28-18 10:30			
BTEX by EPA 8021B	***Extracted:***	Mar-03-18 08:00		Mar-03-18 08:00		Mar-03-18 08:00			
	Analyzed:	Mar-03-18 15:41		Mar-03-18 16:01		Mar-03-18 16:20			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202		
Toluene		0.00245	0.00199	<0.00200	0.00200	<0.00202	0.00202		
Ethylbenzene		0.00331	0.00199	<0.00200	0.00200	<0.00202	0.00202		
m,p-Xylenes		0.00513	0.00398	<0.00401	0.00401	<0.00403	0.00403		
o-Xylene		0.00614	0.00199	<0.00200	0.00200	<0.00202	0.00202		
Total Xylenes		0.0113	0.00199	<0.00200	0.00200	<0.00202	0.00202		
Total BTEX		0.0170	0.00199	<0.00200	0.00200	<0.00202	0.00202		
Chloride by EPA 300	***Extracted:***	Mar-02-18 16:00		Mar-02-18 16:00		Mar-02-18 16:00			
	Analyzed:	Mar-03-18 00:35		Mar-03-18 00:52		Mar-03-18 01:08			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		68.3	4.96	<4.95	4.95	<4.95	4.95		
TPH by SW8015 Mod	***Extracted:***	Mar-02-18 18:00		Mar-02-18 18:00		Mar-02-18 18:00			
	Analyzed:	Mar-03-18 07:00		Mar-03-18 07:21		Mar-03-18 07:40			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0		
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0	<15.0	15.0		
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0	<15.0	15.0		
Total TPH		<15.0	15.0	<15.0	15.0	<15.0	15.0		

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

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

Form 2 - Surrogate Recoveries

Project Name: GJ West COOP Unit#210

Work Orders : 578036,

Project ID:

Lab Batch #: 3042782 **Sample:** 578036-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 07:00

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	51.3	49.9	103	70-135	

Lab Batch #: 3042782 **Sample:** 578036-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 07:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.9	99.8	98	70-135	
o-Terphenyl	49.9	49.9	100	70-135	

Lab Batch #: 3042782 **Sample:** 578036-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 07:40

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	106	99.8	106	70-135	
o-Terphenyl	53.3	49.9	107	70-135	

Lab Batch #: 3042714 **Sample:** 578036-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 15:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0239	0.0300	80	70-130	
4-Bromofluorobenzene	0.0322	0.0300	107	70-130	

Lab Batch #: 3042714 **Sample:** 578036-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 16:01

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	0.0367	0.0300	122	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 : 578036,

Project ID:

Lab Batch #: 3042714 **Sample:** 578036-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 03/03/18 16:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0225	0.0300	75	70-130	
4-Bromofluorobenzene	0.0310	0.0300	103	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 : 578036,

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 : 578036,

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 #: 578036 **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 #: 578036 **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 # : 578036 **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 # : 578036 **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.

XENCO LABORATORIES

Setting the Standard since 1990

Stafford,Texas (281-240-4200)

Dallas Texas (214-902-0300)

San Antonio, Texas (210-509-3334)

Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

www.xenco.com

CHAIN OF CUSTODY

Page 1 Of 1

Xenco Quote # | Xenco Job # 578036

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:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	ICE	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments
1	S-4 E. SIDEWALL	N/A	2/28/2018	10:00	S	1								X	X	X	X	
2	S-4 W. SIDEWALL	N/A	2/28/2018	10:10	S	1								X	X	X	X	
3	N. SIDEWALL	N/A	2/28/2018	10:30	S	1								X	X	X	X	
4																		
5																		
6																		
7																		
8																		
9																		
10																		

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	Ezpa Gopal	Ezpa Gopal	3-1-18 3:32	
2						3/2/18 11:51
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 a losses or expenses incurred by the Client if such loses are due to circumstances beyond the control of Xenco. A minimum charge of $75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at $5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

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

Work Order #: 578036

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

Jessica Kramer

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 206419

CONDITIONS

Operator: Spur Energy Partners LLC 9655 Katy Freeway Houston, TX 77024	OGRID: 328947
	Action Number: 206419
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	None	5/8/2023