

December 7, 2017

Mike Bratcher
Oil Conservation Division, District 2
811 S. First Street
Artesia, NM 88210

Henryetta Price
Bureau of Land Management
620 E. Green Street
Carlsbad, NM 88220

Re: Closure Letter
Patron 23 Federal #004H (2RP-4096)
API #: 30-015-42451
Unit Letter A Section 23, Township 25S, Range 29E
Eddy County, NM

Mr. Bratcher/Ms. Price,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure request for the Patron 23 Federal #004H. This release occurred on January 28, 2017 and impacted the pasture in Unit Letter P, Section 14, Township 25 South, and Range 29 East. All work has been completed in accordance with the proposed remedial activities submitted to and approved by the New Mexico Oil Conservation Division (NMOCD) and Bureau of Land Management (BLM).

BACKGROUND

On January 28, 2017, a poly flowline failed resulting in the release of approximately two-hundred (200) barrels (bbls) of produced water. No free fluids were recovered.

On May 9, 2017, COG personnel conducted soil sampling within the impacted area in preparation for the development of a remediation work plan (laboratory results are summarized in the tables below).

On September 9, 2017, NMOCD issued approval of the remediation work plan submitted by TRC on September 7, 2017. On September 20, 2017, BLM issued like approval of the remediation work plan.

GROUNDWATER AND SITE RANKING

Based on the 2005 Chevron Texaco groundwater trend map, groundwater in the project vicinity is approximately 190-feet below ground surface (BGS). Therefore the site ranking for this release is zero (0) based on the following:

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

LABORATORY RESULTS

Initial Sampling Event May 9, 2017

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	Total TPH (mg/kg)
T-1	0	<0.002	<0.004	5,570	<15.0	<15.0	<15.0
T-1	1	<0.002	<0.004	11,000	<15.0	<15.0	<15.0
T-1	2	<0.002	<0.004	8,710	<15.0	<15.0	<15.0
T-1	3	<0.002	<0.004	7,200	<15.0	<15.0	<15.0
T-1	4	--	--	1,850	--	--	--
T-1	6	--	--	34.7	--	--	--
T-1	7.5	--	--	85.5	--	--	--
T-2	0	<0.002	<0.004	6,510	<15.0	<15.0	<15.0
T-2	1	<0.002	<0.004	8,670	<15.0	<15.0	<15.0
T-2	2	<0.002	<0.004	7,420	<15.0	<15.0	<15.0
T-2	3	<0.002	<0.004	5,960	<15.0	<15.0	<15.0
T-3	0	<0.002	<0.004	2,910	<15.0	<15.0	<15.0
T-3	1	<0.002	<0.004	2,310	<15.0	<15.0	<15.0
T-3	2	<0.002	<0.004	5,310	<15.0	<15.0	<15.0
T-3	3	<0.002	<0.004	387	<15.0	<15.0	<15.0
T-3	4	--	--	6,590	--	--	--
T-3	6	--	--	2,500	--	--	--
T-3	8	--	--	5.66	--	--	--
T-3	10	--	--	<4.90	--	--	--
T-3	13	--	--	20.3	--	--	--
T-4	0	<0.002	<0.004	850	<15.0	<15.0	<15.0
T-4	1	<0.002	<0.004	3,360	<15.0	<15.0	<15.0
T-4	2	<0.002	<0.004	3,850	<15.0	<15.0	<15.0
T-4	3	<0.002	<0.004	4,380	<15.0	<15.0	<15.0
T-4	4	--	--	117	--	--	--

Initial Sampling Event May 9, 2017 Continued

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	Total TPH (mg/kg)
T-4	6	--	--	6.90	--	--	--
T-4	9	--	--	110	--	--	--
T-5	0	<0.002	<0.004	2,180	<15.0	<15.0	<15.0
T-5	1	<0.002	<0.004	4,260	<15.0	<15.0	<15.0
T-5	2	<0.002	<0.004	6,970	<15.0	<15.0	<15.0
T-5	3	<0.002	<0.004	2,590	<15.0	<15.0	<15.0
T-5	4	--	--	325	--	--	--
T-5	9	--	--	11.9	--	--	--
North	0	--	--	<9.60	--	--	--
North	1	--	--	<9.69	--	--	--
South	0	--	--	78.7	--	--	--
South	1	--	--	47.9	--	--	--
East	0	--	--	762	--	--	--
East	1	--	--	71.2	--	--	--
West	0	--	--	18.2	--	--	--
West	1	--	--	15.2	--	--	--

(--) Analysis not requested

Confirmation Sampling Event November 14, 2017

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	Total TPH (mg/kg)
T-1	11	--	--	82	--	--	--
T-2	6	--	--	16	--	--	--
T-2	11	--	--	325	--	--	--
East	0.5	--	--	315	--	--	--

REMEDIAL ACTIONS

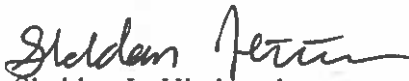
- The impacted area in the vicinity of sample locations T-1 through T-5 was excavated to depths varying from three and one half (3.5) feet to six and one half (6.5) feet BGS.
- The area in the vicinity of sample location “East” was excavated to a depth of one half (0.5) foot BGS.
- Per the approved work plan trenches were advanced at sample locations T-1 and T-2 to confirm that chloride concentrations were not above the NMOCD (Recommended Remedial Action Level) RRAL for chloride at depth. A confirmation soil sample was also taken at sample location “East” at a depth of one half (0.5) foot BGS to confirm that all chloride impacts above the NMOCD RRAL were removed (see data table above).
- Per the approved work plan confirmation soil samples were taken from the bottom of the excavation. Field data indicated that chloride concentrations remained significantly above the NMOCD RRAL. Therefore COG petitioned NMOCD and BLM for permission to encapsulate the remaining chloride impacts with a 20-mil polymer liner installed at a minimum depth of four (4) feet BGS. The proposed liner installation was approved by NMOCD and BLM on November 14, 2017.
- Following NMOCD and BLM approval of the encapsulation liner the areas of the excavation which remained at three and one half (3.5) feet BGS were advanced to four (4) feet BGS and a 20-mil liner was installed at the bottom of the excavation.
- The excavation was backfilled with locally obtained “like” soil and contoured to match the surrounding terrain. The site will be seeded with BLM #2 seed mixture in the spring of 2018.

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and Bureau of Land Management grant closure approval for the Patron 23 Federal #004H incident that occurred on January 28, 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

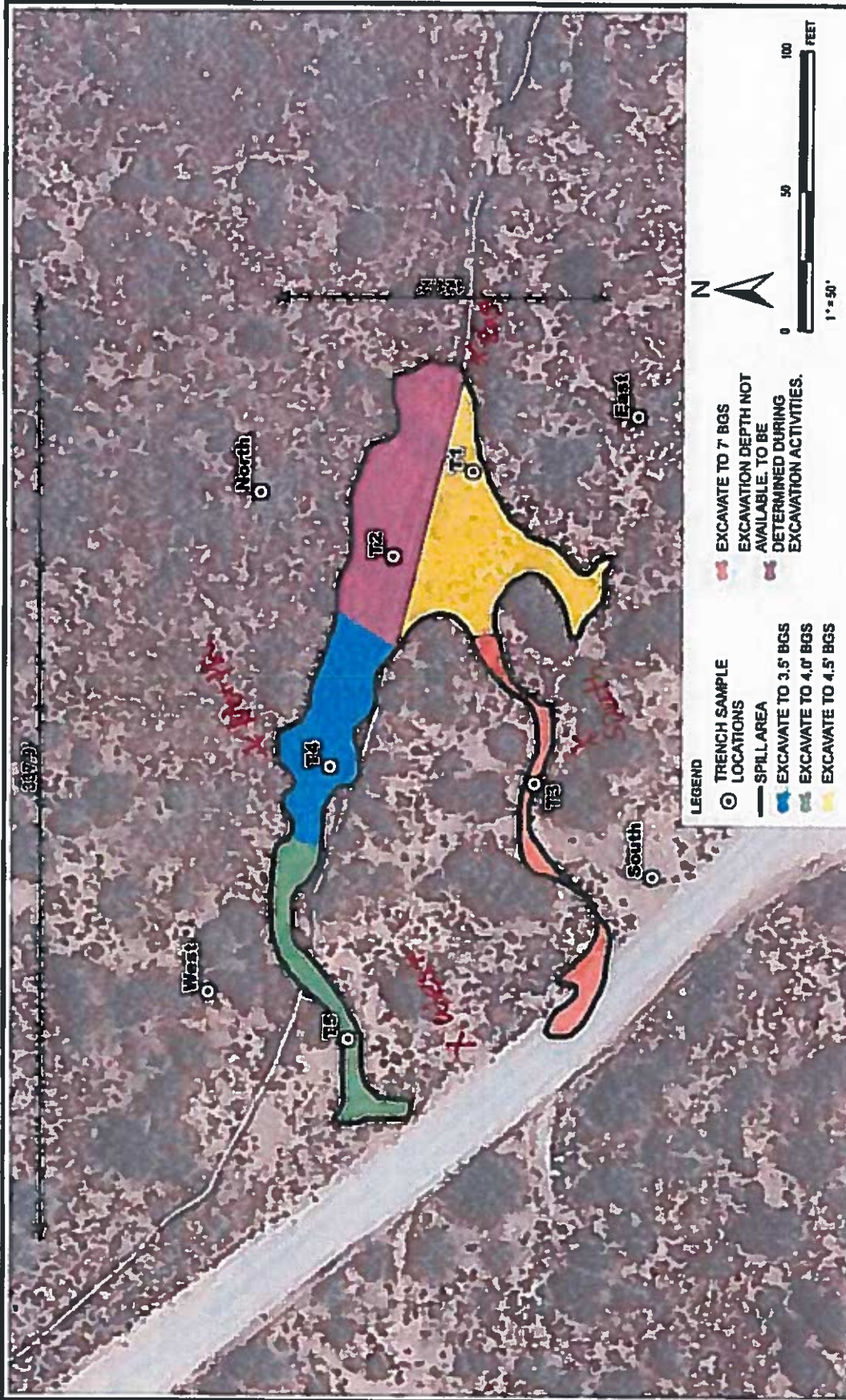
Appendix II: Groundwater Data

Appendix III: Initial C-141

Appendix IV: Final C-141

Appendix V: Laboratory Analytical Reports and Chain-of-Custody Forms

APPENDIX I



TITLE

FIGURE 2 SITE MAP

PROJECT

PATRON 23 FEDERAL #004H
EDDY COUNTY, NEW MEXICO
COG OPERATING, LLC.

DRAWN BY: MLOVELACE

CHECKED BY: NGREEN

APPROVED BY: NGREEN

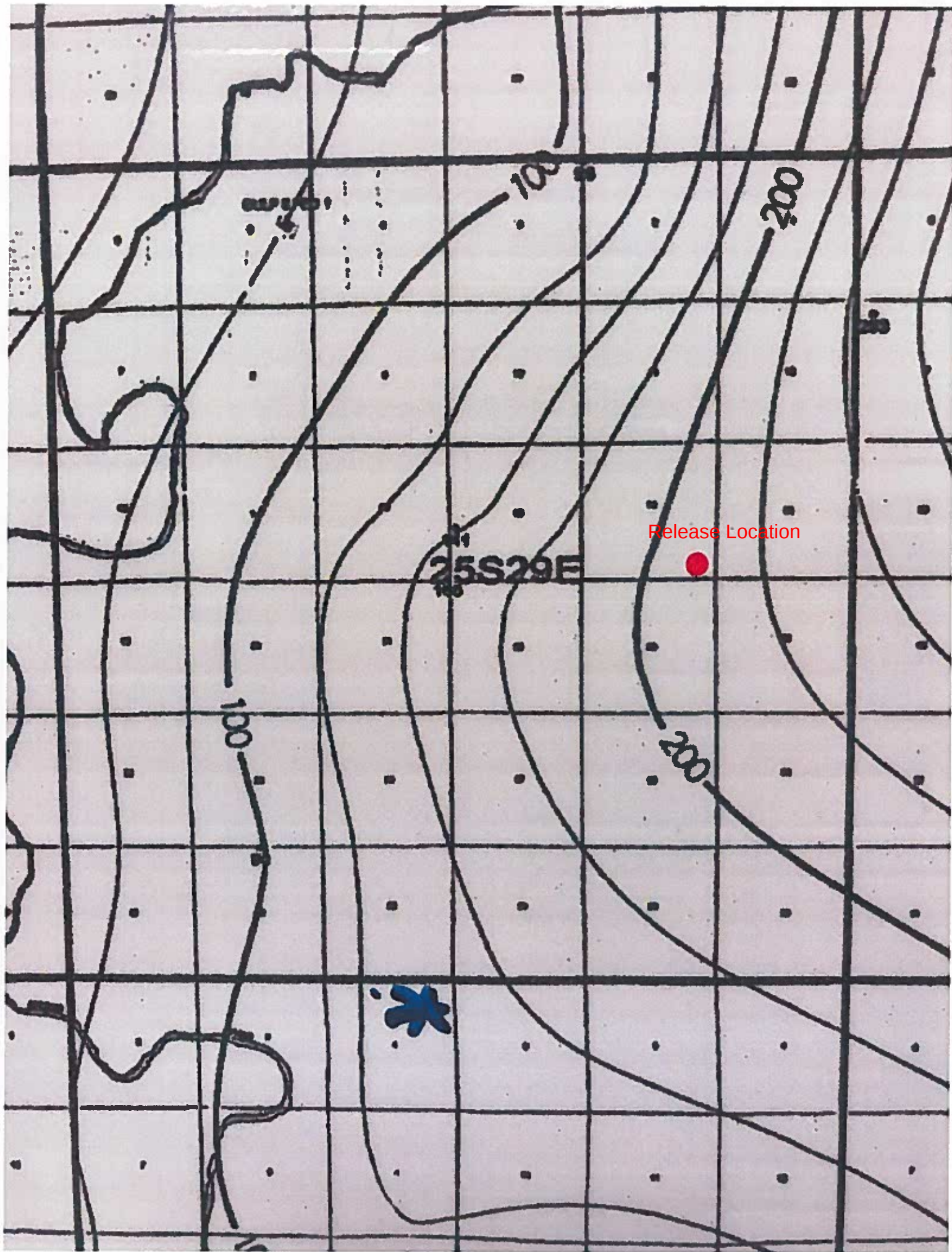
DATE: AUGUST 2017

PROJ. NO.: 279703

FILE: LAT: N 32.1222362 LONG: W 103.9487228

NE1/4 NE1/4 SEC 23 T25S R29E

APPENDIX II



APPENDIX III

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 31 2017

Form C-141
Revised August 8, 2011

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

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

Release Notification and Corrective Action

DAB1703253156

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company:	COG Operating LLC <i>217455</i>	Contact:	Robert McNeill
Address:	600 West Illinois Avenue, Midland TX 79701	Telephone No.	432-683-7443
Facility Name:	Patron 23 Federal #004H	Facility Type:	Flowline

Surface Owner:	Federal	Mineral Owner:		API No.	30-015-42451
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	23	25S	29E	190	North	660	East	Eddy

Latitude 32.1222382 Longitude -103.9487228

NATURE OF RELEASE

Type of Release:	Produced Water	Volume of Release:	200 bbls	Volume Recovered:	0 bbls
Source of Release:	Flowline	Date and Hour of Occurrence:	January 28, 2017 11:00 am	Date and Hour of Discovery:	January 28, 2017 11:00 am
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Ms. Weaver - NMOCD / Ms. Tucker - BLM		
By Whom?	Rebecca Haskell	Date and Hour:	January 28, 2017 5:11 pm	<i>*4:11pm (e-mail)</i>	
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.*

The release was due to a rupture in a flowline. Replaced section of the flowline.

Describe Area Affected and Cleanup Action Taken.*

The release was within a pasture. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

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

Signature:	<i>Rebecca Haskell</i>	OIL CONSERVATION DIVISION	
Printed Name:	Rebecca Haskell	Signed By <i>[Signature]</i>	
Title:	Senior HSE Coordinator	Approved by Environmental Specialist:	
E-mail Address:	<i>rhaskell@concho.com</i>	Approval Date:	<i>2/1/17</i> Expiration Date: <i>N/A</i>
Date:	January 30, 2017 Phone: 432-683-7443	Conditions of Approval:	<i>See attached</i> Attached ☐

* Attach Additional Sheets If Necessary

2RP-4096

APPENDIX IV

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised 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: Patron 23 Federal #004H	Facility Type: Flowline	
Surface Owner: BLM	Mineral Owner: Federal	API No.: 30-015-42451

LOCATION OF RELEASE

Unit Letter P	Section 14	Township 25S	Range 29E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude: 32.1222382 Longitude: -103.9487228 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 200bbls	Volume Recovered: 0bbls
Source of Release: Flowline	Date and Hour of Occurrence: January 28, 2017 11:00am	Date and Hour of Discovery: January 28, 2017 11:00am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Weaver-NMOCD Ms. Tucker-BLM	
By Whom? Rebecca Haskell	Date and Hour: January 28, 2017 5:11pm	
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.* The release was due to a rupture in a flowline. The damaged section of flowline was replaced.		
Describe Area Affected and Cleanup Action Taken.* The release impacted the pasture northeast of the Patron 23 Federal #004H location. The impacted area was evaluated and a remediation work plan was subsequently drafted and approved by NMOCD & BLM. The remediation was carried out in accordance with the approved work plan and stipulations agreed upon by NMOCD & BLM.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: 		OIL CONSERVATION DIVISION
Printed Name: Sheldon L. Hitchcock		Approved by Environmental Specialist:
Title: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: slhitchcock@concho.com	Conditions of Approval:	Attached ☐
Date: 12/7/2017	Phone: 575-746-2010	

* Attach Additional Sheets If Necessary

APPENDIX V



Certificate of Analysis Summary 553116
COG Operating LLC, Artesia, NM
Project Name: Patron Fed #004H



Project Id:
Contact: Aaron Lieb
Project Location: Patron Fed #004H

Date Received in Lab: Sat May-13-17 10:00 am
Report Date: 23-MAY-17
Project Manager: Liz Givens

Analysis Requested		Lab Id:	553116-001	553116-002	553116-003	553116-004	553116-005	553116-006
		Field Id:	T1 - Surface	T1 - 1'	T1 - 2'	T1 - 3'	T1 - 4'	T1 - 6'
		Depth:		1 ft	2 ft	3 ft	4 ft	6 ft
		Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sampled:	May-09-17 09:30	May-09-17 09:30	May-09-17 09:30	May-09-17 09:30	May-09-17 09:30	May-09-17 09:30
BTEX by EPA 8021B		Extracted:	May-18-17 10:00	May-18-17 10:00	May-18-17 10:00	May-18-17 10:00	May-18-17 10:00	May-18-17 10:00
		Analyzed:	May-18-17 18:17	May-18-17 19:23	May-18-17 21:33	May-18-17 21:49	May-18-17 21:49	May-18-17 21:49
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene			<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201
Toluene			<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201
Ethylbenzene			<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201
m,p-Xylenes			<0.00402 0.00402	<0.00398 0.00398	<0.00403 0.00403	<0.00402 0.00402	<0.00402 0.00402	<0.00402 0.00402
o-Xylene			<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201
Total Xylenes			<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201
Total BTEX			<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201
Inorganic Anions by EPA 300/300.1		Extracted:	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58
		Analyzed:	May-21-17 01:49	May-21-17 01:57	May-21-17 02:04	May-21-17 02:12	May-21-17 02:35	May-21-17 03:13
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride			5570 50.0	11000 100	8710 49.2	7200 50.0	1850 24.9	34.7 4.87
TPH By SW8015 Mod		Extracted:	May-16-17 08:00	May-16-17 08:00	May-16-17 08:00	May-16-17 08:00	May-16-17 08:00	May-16-17 08:00
		Analyzed:	May-16-17 10:52	May-16-17 11:52	May-16-17 12:12	May-16-17 12:32	May-16-17 12:32	May-16-17 12:32
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C10 Gasoline Range Hydrocarbons			<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
C10-C28 Diesel Range Hydrocarbons			<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH			<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi
Version: 1%

Brandi Ritcherson

Brandi Ritcherson
Project Manager



Certificate of Analysis Summary 553116

COG Operating LLC, Artesia, NM
Project Name: Patron Fed #004H



Project Id:

Contact: Aaron Lieb

Project Location: Patron Fed #004H

Date Received in Lab: Sat May-13-17 10:00 am

Report Date: 23-MAY-17

Project Manager: Liz Givens

Analysis Requested		Lab Id: Field Id: Depth: Matrix: Sampled:	553116-007 T1 - 7.5' 7.5 ft SOIL May-09-17 09:30	553116-008 T2 - Surface SOIL May-09-17 10:00	553116-009 T2 - 1' 1 ft SOIL May-09-17 10:00	553116-010 T2 - 2' 2 ft SOIL May-09-17 10:00	553116-011 T2 - 3' 3 ft SOIL May-09-17 10:00	553116-012 T3 - Surface SOIL May-09-17 10:30
BTEX by EPA 8021B		Extracted: Analyzed: Units/RL:		May-18-17 16:00 May-18-17 22:55 mg/kg RL <0.00199 0.00199	May-18-17 16:00 May-18-17 23:11 mg/kg RL <0.00202 0.00202	May-18-17 16:00 May-18-17 23:27 mg/kg RL <0.00200 0.00200	May-18-17 16:00 May-18-17 23:44 mg/kg RL <0.00199 0.00199	May-18-17 16:00 May-19-17 00:00 mg/kg RL <0.00201 0.00201
Benzene				<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201
Toluene				<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201
Ethylbenzene				<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201
m,p-Xylenes				<0.00398 0.00398	<0.00403 0.00403	<0.00399 0.00399	<0.00398 0.00398	<0.00402 0.00402
o-Xylene				<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201
Total Xylenes				<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201
Total BTEX				<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199	<0.00201 0.00201
Inorganic Anions by EPA 300/300.1		Extracted: Analyzed: Units/RL:	May-20-17 19:58 May-21-17 01:26 mg/kg RL 85.5 4.99	May-20-17 19:58 May-21-17 02:42 mg/kg RL 6510 49.4	May-20-17 19:58 May-21-17 02:50 mg/kg RL 8670 49.4	May-20-17 19:58 May-21-17 02:57 mg/kg RL 7420 48.7	May-20-17 19:58 May-21-17 03:05 mg/kg RL 5960 49.1	May-20-17 19:58 May-21-17 03:35 mg/kg RL 2910 24.9
Chloride								
TPH By SW8015 Mod		Extracted: Analyzed: Units/RL:		May-16-17 08:00 May-16-17 12:53 mg/kg RL <15.0 15.0	May-16-17 08:00 May-16-17 13:13 mg/kg RL <15.0 15.0	May-16-17 08:00 May-16-17 13:33 mg/kg RL <15.0 15.0	May-16-17 08:00 May-16-17 13:53 mg/kg RL <15.0 15.0	May-16-17 08:00 May-16-17 14:14 mg/kg RL <15.0 15.0
C6-C10 Gasoline Range Hydrocarbons								
C10-C28 Diesel Range Hydrocarbons				<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH				<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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

Version: 1.00

Brandi Ritcherson

Brandi Ritcherson
Project Manager



Certificate of Analysis Summary 553116

COG Operating LLC, Artesia, NM
Project Name: Patron Fed #004H



Project Id:

Contact: Aaron Lieb

Project Location: Patron Fed #004H

Date Received in Lab: Sat May-13-17 10:00 am

Report Date: 23-MAY-17

Project Manager: Liz Givens

Analysis Requested		Lab Id:	553116-013	553116-014	553116-015	553116-016	553116-017	553116-018
		Field Id:	T3 - 1'	T3 - 2'	T3 - 3'	T3 - 4'	T3 - 6'	T3 - 8'
		Depth:	1 ft	2 ft	3 ft	4 ft	6 ft	8 ft
		Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sampled:	May-09-17 10:30	May-09-17 10:30	May-09-17 10:30	May-09-17 10:30	May-09-17 10:30	May-09-17 10:45
BTEX by EPA 8021B		Extracted:	May-18-17 16:00	May-18-17 16:00	May-18-17 16:00			
		Analyzed:	May-19-17 00:16	May-19-17 00:32	May-19-17 00:49			
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene			<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199			
Toluene			<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199			
Ethylbenzene			<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199			
m,p-Xylenes			<0.00404 0.00404	<0.00401 0.00401	<0.00398 0.00398			
o-Xylene			<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199			
Total Xylenes			<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199			
Total BTEX			<0.00202 0.00202	<0.00200 0.00200	<0.00199 0.00199			
Inorganic Anions by EPA 300/300.1		Extracted:	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58	May-20-17 19:58
		Analyzed:	May-21-17 03:43	May-21-17 04:06	May-21-17 04:13	May-21-17 04:21	May-21-17 04:29	May-21-17 04:36
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride			2310 24.8	5310 49.4	387 4.94	6590 49.1	2500 24.4	5.66 4.98
TPH By SW8015 Mod		Extracted:	May-16-17 08:00	May-16-17 08:00	May-16-17 08:00			
		Analyzed:	May-16-17 14:35	May-16-17 15:35	May-16-17 15:55			
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
C6-C10 Gasoline Range Hydrocarbons			<15.0 15.0	<15.0 15.0	<15.0 15.0			
C10-C28 Diesel Range Hydrocarbons			<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			

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

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Version: 1%

Brandi Ritcherson

Brandi Ritcherson
Project Manager



Certificate of Analysis Summary 553116

COG Operating LLC, Artesia, NM

Project Name: Patron Fed #004H



Project Id:

Contact: Aaron Lieb

Project Location: Patron Fed #004H

Date Received in Lab: Sat May-13-17 10:00 am

Report Date: 23-MAY-17

Project Manager: Liz Givens

Analysis Requested		Lab Id:	553116-019	553116-020	553116-021	553116-022	553116-023	553116-024
		Field Id:	T3 - 10'	T3 - 13'	T4 - Surface	T4 - 1'	T4 - 2'	T4 - 3'
		Depth:	10 ft	13 ft		1 ft	2 ft	3 ft
		Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sampled:	May-09-17 10:45	May-09-17 10:45	May-09-17 11:00	May-09-17 11:00	May-09-17 11:00	May-09-17 11:00
BTEX by EPA 8021B		Extracted:						
		Analyzed:						
		Units/RL:						
Benzene								
Toluene								
Ethylbenzene								
m,p-Xylenes								
o-Xylene								
Total Xylenes								
Total BTEX								
Inorganic Anions by EPA 300/300.1		Extracted:	May-20-17 19:58	May-20-17 19:58	May-20-17 20:43	May-20-17 20:43	May-20-17 20:43	May-20-17 20:43
		Analyzed:	May-21-17 04:44	May-21-17 04:51	May-21-17 06:45	May-21-17 06:53	May-21-17 07:01	May-21-17 07:08
		Units/RL:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Chloride			<4.90	4.90	850	3360	3850	4380
TPH By SW8015 Mod		Extracted:						
		Analyzed:						
		Units/RL:						
C6-C10 Gasoline Range Hydrocarbons								
C10-C28 Diesel Range Hydrocarbons								
Total TPH								

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Version: 1.3%

Brandi Ritcherson

Brandi Ritcherson
Project Manager



Certificate of Analysis Summary 553116
COG Operating LLC, Artesia, NM
Project Name: Patron Fed #004H



Project Id:

Contact: Aaron Lieb

Project Location: Patron Fed #004H

Date Received in Lab: Sat May-13-17 10:00 am

Report Date: 23-MAY-17

Project Manager: Liz Givens

Analysis Requested		Lab Id:	553116-025	553116-026	553116-027	553116-028	553116-029	553116-030
		Field Id:	T4 - 4'	T4 - 6'	T4 - 9'	TS - Surface	TS - 1'	TS - 2'
		Depth:	4 ft	6 ft	9 ft		1 ft	2 ft
		Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sampled:	May-09-17 11:00	May-09-17 11:00	May-09-17 11:00	May-09-17 11:30	May-09-17 11:30	May-09-17 11:30
BTEX by EPA 8021B		Extracted:				May-18-17 16:00	May-18-17 16:00	May-19-17 08:00
		Analyzed:				May-19-17 02:26	May-19-17 02:42	May-19-17 11:59
		Units/RL:				mg/kg RL	mg/kg RL	mg/kg RL
	Benzene					<0.00199	<0.00200	<0.00370
	Toluene					<0.00199	<0.00200	<0.00370
	Ethylbenzene					<0.00199	<0.00200	<0.00370
	m,p-Xylenes					<0.00398	<0.00399	<0.00741
	o-Xylene					<0.00199	<0.00200	<0.00370
	Total Xylenes					<0.00199	<0.00200	<0.00370
Inorganic Anions by EPA 300/300.1						<0.00199	<0.00200	<0.00370
	Extracted:	May-20-17 20:43	May-20-17 20:43	May-20-17 20:43	May-20-17 20:43	May-20-17 20:43	May-20-17 20:43	May-20-17 20:43
	Analyzed:	May-21-17 07:16	May-21-17 07:23	May-21-17 07:46	May-21-17 07:54	May-21-17 08:17	May-21-17 08:24	May-21-17 08:24
Chloride		Units/RL:	117 4.98	6.90 4.93	110 4.87	mg/kg RL	mg/kg RL	mg/kg RL
TPH By SW8015 Mod						2180 25.0	4260 25.0	6970 50.0
	Extracted:					May-16-17 08:00	May-16-17 08:00	May-16-17 08:00
	Analyzed:					May-16-17 17:36	May-16-17 17:56	May-16-17 18:15
		Units/RL:				mg/kg RL	mg/kg RL	mg/kg RL
C6-C10 Gasoline Range Hydrocarbons						<15.0 15.0	<15.0 15.0	<15.0 15.0
C10-C28 Diesel Range Hydrocarbons						<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

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Version: 1.0

Brandi Ritcherson
Project Manager



Contact: Aaron Lieb
Project Location: Patron Fed #004H

Date Received in Lab: Sat May-13-17 10:00 am
Report Date: 23-MAY-17
Project Manager: Liz Givens

<i>Analysis Requested</i>	<i>Lab Id:</i> <i>Field Id:</i> <i>Depth:</i> <i>Matrix:</i> <i>Sampled:</i>	553116-031 TS - 3' 3 ft SOIL May-09-17 11:30	553116-032 TS - 4' 4 ft SOIL May-09-17 11:30	553116-033 TS - 9' 9 ft SOIL May-09-17 11:30		
BTEX by EPA 8021B	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	May-18-17 16:00 May-19-17 06:47 mg/kg RL				
Benzene		<0.00200 0.00200				
Toluene		<0.00200 0.00200				
Ethylbenzene		<0.00200 0.00200				
m,p-Xylenes		<0.00399 0.00399				
o-Xylene		<0.00200 0.00200				
Total Xylenes		<0.00200 0.00200				
Total BTEX		<0.00200 0.00200				
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	May-20-17 20:43 May-21-17 08:32 mg/kg RL	May-20-17 20:43 May-21-17 08:39 mg/kg RL	May-20-17 20:43 May-21-17 08:47 mg/kg RL		
Chloride		2590 24.5	325 4.87	11.9 4.87		
TPH By SW8015 Mod	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	May-16-17 08:00 May-16-17 18:34 mg/kg RL				
C6-C10 Gasoline Range Hydrocarbons		<150 15.0				
C10-C28 Diesel Range Hydrocarbons		<150 15.0				
Total TPH		<150 15.0				

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

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Version 1.0

Brandi Ritcherson
Project Manager

Analytical Report 553116

**for
COG Operating LLC**

Project Manager: Aaron Lieb

Patron Fed #004H

23-MAY-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)

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

Xenco-San Antonio: Texas (T104704534)

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

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



23-MAY-17

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

Reference: XENCO Report No(s): 553116
Patron Fed #004H
Project Address: Patron Fed #004H

Aaron Lieb:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 553116. 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. 553116 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Brandi Ritcherson

Project Manager

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Sample Cross Reference 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1 - Surface	S	05-09-17 09:30	N/A	553116-001
T1 - 1'	S	05-09-17 09:30	- 1 ft	553116-002
T1 - 2'	S	05-09-17 09:30	- 2 ft	553116-003
T1 - 3'	S	05-09-17 09:30	- 3 ft	553116-004
T1 - 4'	S	05-09-17 09:30	- 4 ft	553116-005
T1 - 6'	S	05-09-17 09:30	- 6 ft	553116-006
T1 - 7.5'	S	05-09-17 09:30	- 7.5 ft	553116-007
T2 - Surface	S	05-09-17 10:00	N/A	553116-008
T2 - 1'	S	05-09-17 10:00	- 1 ft	553116-009
T2 - 2'	S	05-09-17 10:00	- 2 ft	553116-010
T2 - 3'	S	05-09-17 10:00	- 3 ft	553116-011
T3 - Surface	S	05-09-17 10:30	N/A	553116-012
T3 - 1'	S	05-09-17 10:30	- 1 ft	553116-013
T3 - 2'	S	05-09-17 10:30	- 2 ft	553116-014
T3 - 3'	S	05-09-17 10:30	- 3 ft	553116-015
T3 - 4'	S	05-09-17 10:30	- 4 ft	553116-016
T3 - 6'	S	05-09-17 10:30	- 6 ft	553116-017
T3 - 8'	S	05-09-17 10:45	- 8 ft	553116-018
T3 - 10'	S	05-09-17 10:45	- 10 ft	553116-019
T3 - 13'	S	05-09-17 10:45	- 13 ft	553116-020
T4 - Surface	S	05-09-17 11:00	N/A	553116-021
T4 - 1'	S	05-09-17 11:00	- 1 ft	553116-022
T4 - 2'	S	05-09-17 11:00	- 2 ft	553116-023
T4 - 3'	S	05-09-17 11:00	- 3 ft	553116-024
T4 - 4'	S	05-09-17 11:00	- 4 ft	553116-025
T4 - 6'	S	05-09-17 11:00	- 6 ft	553116-026
T4 - 9'	S	05-09-17 11:00	- 9 ft	553116-027
T5 - Surface	S	05-09-17 11:30	N/A	553116-028
T5 - 1'	S	05-09-17 11:30	- 1 ft	553116-029
T5 - 2'	S	05-09-17 11:30	- 2 ft	553116-030
T5 - 3'	S	05-09-17 11:30	- 3 ft	553116-031
T5 - 4'	S	05-09-17 11:30	- 4 ft	553116-032
T5 - 9'	S	05-09-17 11:30	- 9 ft	553116-033



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Patron Fed #004H

Project ID:

Work Order Number(s): 553116

Report Date: 23-MAY-17

Date Received: 05/13/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3017709 BTEX by EPA 8021B

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

Batch: LBA-3017710 BTEX by EPA 8021B

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

Lab Sample ID 553116-024 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike.

Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 553116-008, -009, -

010, -011, -012, -013, -014, -015, -022, -023, -024, -028, -029, -031.

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

Benzene, m,p-Xylenes, o-Xylene Relative Percent Difference (RPD) between matrix spike and duplicate were above quality control limits.

Samples in the analytical batch are: 553116-008, -009, -010, -011, -012, -013, -014, -015, -022, -023, -024, -028, -029, -031

Batch: LBA-3017817 Inorganic Anions by EPA 300/300.1

Lab Sample ID 553116-007 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to

possible matrix interference. Samples in the analytical batch are: 553116-001, -002, -003, -004, -005, -

006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3017865 BTEX by EPA 8021B

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



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T1 - Surface
Lab Sample Id: 553116-001

Matrix: Soil
Date Collected: 05.09.17 09.30

Date Received: 05.13.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5570	50.0	mg/kg	05.21.17 01.49		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 10.52	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 10.52	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 10.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	05.16.17 10.52		
o-Terphenyl	84-15-1	102	%	70-135	05.16.17 10.52		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 10.00

Basis: Wet Weight

Seq Number: 3017709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.18.17 18.17	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.18.17 18.17	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.18.17 18.17	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.18.17 18.17	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.18.17 18.17	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.18.17 18.17	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.18.17 18.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	84	%	80-120	05.18.17 18.17		
1,4-Difluorobenzene	540-36-3	91	%	80-120	05.18.17 18.17		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T1 - 1'
Lab Sample Id: 553116-002

Matrix: Soil
Date Collected: 05.09.17 09.30

Date Received: 05.13.17 10.00
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11000	100	mg/kg	05.21.17 01.57		20

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	05.16.17 11.52	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<14.9	14.9	mg/kg	05.16.17 11.52	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	05.16.17 11.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	05.16.17 11.52	
o-Terphenyl	84-15-1	98	%	70-135	05.16.17 11.52	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 10.00

Basis: Wet Weight

Seq Number: 3017709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.18.17 19.23	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.18.17 19.23	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.18.17 19.23	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.18.17 19.23	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.18.17 19.23	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.18.17 19.23	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.18.17 19.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	90	%	80-120	05.18.17 19.23	
4-Bromofluorobenzene	460-00-4	89	%	80-120	05.18.17 19.23	



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T1 - 2'
Lab Sample Id: 553116-003

Matrix: Soil
Date Collected: 05.09.17 09.30

Date Received: 05.13.17 10.00
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8710	49.2	mg/kg	05.21.17 02.04		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 12.12	U	1
C10-C28 Diesel Range Hydrocarbons	CHC28DRO	<15.0	15.0	mg/kg	05.16.17 12.12	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 12.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	05.16.17 12.12	
o-Terphenyl	84-15-1	99	%	70-135	05.16.17 12.12	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 10.00

Basis: Wet Weight

Seq Number: 3017709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.18.17 21.33	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.18.17 21.33	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.18.17 21.33	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	05.18.17 21.33	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.18.17 21.33	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.18.17 21.33	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.18.17 21.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	83	%	80-120	05.18.17 21.33	
4-Bromofluorobenzene	460-00-4	82	%	80-120	05.18.17 21.33	



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T1 - 3'

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-004

Date Collected: 05.09.17 09.30

Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7200	50.0	mg/kg	05.21.17 02.12		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 12.32	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 12.32	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 12.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	05.16.17 12.32	
o-Terphenyl	84-15-1	97	%	70-135	05.16.17 12.32	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 10.00

Basis: Wet Weight

Seq Number: 3017709

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.18.17 21.49	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.18.17 21.49	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.18.17 21.49	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.18.17 21.49	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.18.17 21.49	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.18.17 21.49	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.18.17 21.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	80-120	05.18.17 21.49	
4-Bromofluorobenzene	460-00-4	96	%	80-120	05.18.17 21.49	



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T1 - 4' Matrix: Soil Date Received: 05.13.17 10.00
Lab Sample Id: 553116-005 Date Collected: 05.09.17 09.30 Sample Depth: 4 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 19.58 Basis: Wet Weight
Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1850	24.9	mg/kg	05.21.17 02.35		5



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T1 - 6' Matrix: Soil Date Received: 05.13.17 10.00
Lab Sample Id: 553116-006 Date Collected: 05.09.17 09.30 Sample Depth: 6 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 19.58 Basis: Wet Weight
Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.7	4.87	mg/kg	05.21.17 03.13		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T1 - 7.5'

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-007

Date Collected: 05.09.17 09.30

Sample Depth: 7.5 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	85.5	4.99	mg/kg	05.21.17 01.26		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T2 - Surface

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-008

Date Collected: 05.09.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6510	49.4	mg/kg	05.21.17 02.42		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 12.53	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 12.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 12.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	05.16.17 12.53	
o-Terphenyl	84-15-1	97	%	70-135	05.16.17 12.53	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16.00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.18.17 22.55	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.18.17 22.55	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.18.17 22.55	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.18.17 22.55	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.18.17 22.55	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.18.17 22.55	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.18.17 22.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89	%	80-120	05.18.17 22.55	
1,4-Difluorobenzene	540-36-3	92	%	80-120	05.18.17 22.55	



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T2 - 1' Matrix: Soil Date Received: 05.13.17 10.00
Lab Sample Id: 553116-009 Date Collected: 05.09.17 10.00 Sample Depth: 1 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 19.58 Basis: Wet Weight
Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8670	49.4	mg/kg	05.21.17 02.50		10

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 05.16.17 08.00 Basis: Wet Weight
Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 13.13	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 13.13	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 13.13	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	106	%	70-135	05.16.17 13.13		
o-Terphenyl	84-15-1	107	%	70-135	05.16.17 13.13		

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

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.18.17 23.11	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.18.17 23.11	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.18.17 23.11	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	05.18.17 23.11	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.18.17 23.11	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.18.17 23.11	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.18.17 23.11	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	83	%	80-120	05.18.17 23.11		
4-Bromofluorobenzene	460-00-4	86	%	80-120	05.18.17 23.11		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T2 - 2'
Lab Sample Id: 553116-010

Matrix: Soil
Date Collected: 05.09.17 10.00

Date Received: 05.13.17 10.00
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7420	48.7	mg/kg	05.21.17 02.57		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 13.33	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 13.33	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 13.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	115	%	70-135	05.16.17 13.33		
o-Terphenyl	84-15-1	118	%	70-135	05.16.17 13.33		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16.00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.18.17 23.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.18.17 23.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.18.17 23.27	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.18.17 23.27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.18.17 23.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.18.17 23.27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.18.17 23.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	91	%	80-120	05.18.17 23.27		
4-Bromofluorobenzene	460-00-4	96	%	80-120	05.18.17 23.27		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T2 - 3'
Lab Sample Id: 553116-011

Matrix: Soil
Date Collected: 05.09.17 10.00

Date Received: 05.13.17 10.00
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3017817

Date Prep: 05.20.17 19.58

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5960	49.1	mg/kg	05.21.17 03.05		10

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3017668

Date Prep: 05.16.17 08.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 13.53	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 13.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 13.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	95	%	70-135	05.16.17 13.53		
o-Terphenyl	84-15-1	98	%	70-135	05.16.17 13.53		

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3017710

Date Prep: 05.18.17 16.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.18.17 23.44	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.18.17 23.44	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.18.17 23.44	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.18.17 23.44	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.18.17 23.44	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.18.17 23.44	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.18.17 23.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	80-120	05.18.17 23.44		
1,4-Difluorobenzene	540-36-3	87	%	80-120	05.18.17 23.44		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T3 - Surface

Matrix: Soil

Date Received: 05.13.17 10:00

Lab Sample Id: 553116-012

Date Collected: 05.09.17 10:30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19:58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2910	24.9	mg/kg	05.21.17 03:35		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08:00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 14:14	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 14:14	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 14:14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	92	%	70-135	05.16.17 14:14		
o-Terphenyl	84-15-1	93	%	70-135	05.16.17 14:14		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16:00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.19.17 00:00	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.19.17 00:00	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.19.17 00:00	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.19.17 00:00	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.19.17 00:00	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.19.17 00:00	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.19.17 00:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	80-120	05.19.17 00:00		
1,4-Difluorobenzene	540-36-3	106	%	80-120	05.19.17 00:00		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T3 - 1'
Lab Sample Id: 553116-013

Matrix: Soil
Date Collected: 05.09.17 10.30

Date Received: 05.13.17 10.00
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3017817

Date Prep: 05.20.17 19.58

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2310	24.8	mg/kg	05.21.17 03.43		5

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3017668

Date Prep: 05.16.17 08.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 14.35	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 14.35	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 14.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	95	%	70-135	05.16.17 14.35		
o-Terphenyl	84-15-1	97	%	70-135	05.16.17 14.35		

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3017710

Date Prep: 05.18.17 16.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.19.17 00.16	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.19.17 00.16	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.19.17 00.16	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	05.19.17 00.16	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.19.17 00.16	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.19.17 00.16	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.19.17 00.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	80-120	05.19.17 00.16		
1,4-Difluorobenzene	540-36-3	115	%	80-120	05.19.17 00.16		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T3 - 2'
Lab Sample Id: 553116-014

Matrix: Soil
Date Collected: 05.09.17 10.30

Date Received: 05.13.17 10.00
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5310	49.4	mg/kg	05.21.17 04.06		10

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 15.35	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 15.35	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 15.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	109	%	70-135	05.16.17 15.35		
o-Terphenyl	84-15-1	110	%	70-135	05.16.17 15.35		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16.00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.17 00.32	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.17 00.32	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.17 00.32	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.19.17 00.32	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.17 00.32	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.17 00.32	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.17 00.32	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	93	%	80-120	05.19.17 00.32		
4-Bromofluorobenzene	460-00-4	94	%	80-120	05.19.17 00.32		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T3 - 3' Matrix: Soil Date Received: 05.13.17 10:00
Lab Sample Id: 553116-015 Date Collected: 05.09.17 10:30 Sample Depth: 3 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 19:58 Basis: Wet Weight
Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	387	4.94	mg/kg	05.21.17 04.13		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 05.16.17 08:00 Basis: Wet Weight
Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 15.55	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 15.55	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 15.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	05.16.17 15.55		
o-Terphenyl	84-15-1	96	%	70-135	05.16.17 15.55		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 05.18.17 16:00 Basis: Wet Weight
Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.17 00.49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.17 00.49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.17 00.49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.17 00.49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.17 00.49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.17 00.49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.17 00.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	80-120	05.19.17 00.49		
4-Bromofluorobenzene	460-00-4	109	%	80-120	05.19.17 00.49		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T3 - 4'
Lab Sample Id: 553116-016

Matrix: Soil
Date Collected: 05.09.17 10.30

Date Received: 05.13.17 10.00
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6590	49.1	mg/kg	05.21.17 04.21		10



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T3 - 6'

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-017

Date Collected: 05.09.17 10.30

Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2500	24.4	mg/kg	05.21.17 04.29		5



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T3 - 8'

Matrix: Soil

Date Received: 05.13.17 10:00

Lab Sample Id: 553116-018

Date Collected: 05.09.17 10:45

Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19:58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.66	4.98	mg/kg	05.21.17 04:36		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T3 - 10' Matrix: Soil Date Received: 05.13.17 10.00
Lab Sample Id: 553116-019 Date Collected: 05.09.17 10.45 Sample Depth: 10 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 19.58 Basis: Wet Weight
Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	05.21.17 04.44	U	1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T3 - 13'

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-020

Date Collected: 05.09.17 10.45

Sample Depth: 13 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 19.58

Basis: Wet Weight

Seq Number: 3017817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.3	4.92	mg/kg	05.21.17 04.51		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T4 - Surface

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-021

Date Collected: 05.09.17 11.00

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	850	4.87	mg/kg	05.21.17 06.45		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 16.15	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 16.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 16.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	95	%	70-135	05.16.17 16.15		
o-Terphenyl	84-15-1	98	%	70-135	05.16.17 16.15		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.19.17 08.00

Basis: Wet Weight

Seq Number: 3017865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00372	0.00372	mg/kg	05.19.17 12.15	U	1
Toluene	108-88-3	<0.00372	0.00372	mg/kg	05.19.17 12.15	U	1
Ethylbenzene	100-41-4	<0.00372	0.00372	mg/kg	05.19.17 12.15	U	1
m,p-Xylenes	179601-23-1	<0.00743	0.00743	mg/kg	05.19.17 12.15	U	1
o-Xylene	95-47-6	<0.00372	0.00372	mg/kg	05.19.17 12.15	U	1
Total Xylenes	1330-20-7	<0.00372	0.00372	mg/kg	05.19.17 12.15	U	1
Total BTEX		<0.00372	0.00372	mg/kg	05.19.17 12.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	80-120	05.19.17 12.15		
1,4-Difluorobenzene	540-36-3	109	%	80-120	05.19.17 12.15		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T4 - 1'
Lab Sample Id: 553116-022

Matrix: Soil
Date Collected: 05.09.17 11.00

Date Received: 05.13.17 10.00
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3017818

Date Prep: 05.20.17 20.43

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3360	25.0	mg/kg	05.21.17 06.53		5

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3017668

Date Prep: 05.16.17 08.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	05.16.17 16.36	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<14.9	14.9	mg/kg	05.16.17 16.36	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	05.16.17 16.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	93	%	70-135	05.16.17 16.36		
o-Terphenyl	84-15-1	94	%	70-135	05.16.17 16.36		

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3017710

Date Prep: 05.18.17 16.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.19.17 01.54	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.19.17 01.54	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.19.17 01.54	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	05.19.17 01.54	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.19.17 01.54	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.19.17 01.54	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.19.17 01.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	80-120	05.19.17 01.54		
1,4-Difluorobenzene	540-36-3	84	%	80-120	05.19.17 01.54		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T4 - 2'
Lab Sample Id: 553116-023

Matrix: Soil
Date Collected: 05.09.17 11.00

Date Received: 05.13.17 10.00
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3850	24.7	mg/kg	05.21.17 07.01		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	05.16.17 16.55	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<14.9	14.9	mg/kg	05.16.17 16.55	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	05.16.17 16.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	05.16.17 16.55		
o-Terphenyl	84-15-1	96	%	70-135	05.16.17 16.55		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16.00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.19.17 02.10	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.19.17 02.10	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.19.17 02.10	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.19.17 02.10	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.19.17 02.10	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.19.17 02.10	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.19.17 02.10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	80-120	05.19.17 02.10		
4-Bromofluorobenzene	460-00-4	100	%	80-120	05.19.17 02.10		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T4 - 3' Matrix: Soil Date Received: 05.13.17 10:00
Lab Sample Id: 553116-024 Date Collected: 05.09.17 11:00 Sample Depth: 3 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 20:43 Basis: Wet Weight
Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4380	24.6	mg/kg	05.21.17 07:08		5

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 05.16.17 08:00 Basis: Wet Weight
Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 17:16	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 17:16	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 17:16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	95	%	70-135	05.16.17 17:16		
o-Terphenyl	84-15-1	97	%	70-135	05.16.17 17:16		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 05.18.17 16:00 Basis: Wet Weight
Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.18.17 22:38	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.18.17 22:38	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.18.17 22:38	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	05.18.17 22:38	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.18.17 22:38	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.18.17 22:38	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.18.17 22:38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	80-120	05.18.17 22:38		
4-Bromofluorobenzene	460-00-4	90	%	80-120	05.18.17 22:38		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T4 - 4'

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-025

Date Collected: 05.09.17 11.00

Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	117	4.98	mg/kg	05.21.17 07.16		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T4 - 6'

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-026

Date Collected: 05.09.17 11.00

Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.90	4.93	mg/kg	05.21.17 07.23		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T4 - 9'

Matrix: Soil

Date Received: 05.13.17 10:00

Lab Sample Id: 553116-027

Date Collected: 05.09.17 11:00

Sample Depth: 9 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20:43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	110	4.87	mg/kg	05.21.17 07:46		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T5 - Surface

Matrix: Soil

Date Received: 05.13.17 10.00

Lab Sample Id: 553116-028

Date Collected: 05.09.17 11.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2180	25.0	mg/kg	05.21.17 07.54		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 17.36	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 17.36	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 17.36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	05.16.17 17.36	
o-Terphenyl	84-15-1	98	%	70-135	05.16.17 17.36	

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16.00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.17 02.26	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.17 02.26	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.17 02.26	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.17 02.26	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.17 02.26	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.17 02.26	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.17 02.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	80-120	05.19.17 02.26	
1,4-Difluorobenzene	540-36-3	94	%	80-120	05.19.17 02.26	



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T5 - 1'
Lab Sample Id: 553116-029

Matrix: Soil
Date Collected: 05.09.17 11.30

Date Received: 05.13.17 10.00
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4260	25.0	mg/kg	05.21.17 08.17		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 17.56	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 17.56	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 17.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	96	%	70-135	05.16.17 17.56		
o-Terphenyl	84-15-1	99	%	70-135	05.16.17 17.56		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16.00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.17 02.42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.17 02.42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.17 02.42	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.19.17 02.42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.17 02.42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.17 02.42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.17 02.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	80-120	05.19.17 02.42		
1,4-Difluorobenzene	540-36-3	102	%	80-120	05.19.17 02.42		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T5 - 2' Matrix: Soil Date Received: 05.13.17 10.00
Lab Sample Id: 553116-030 Date Collected: 05.09.17 11.30 Sample Depth: 2 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 20.43 Basis: Wet Weight
Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6970	50.0	mg/kg	05.21.17 08.24		10

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 05.16.17 08.00 Basis: Wet Weight
Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 18.15	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 18.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 18.15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	05.16.17 18.15		
o-Terphenyl	84-15-1	101	%	70-135	05.16.17 18.15		

Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 05.19.17 08.00 Basis: Wet Weight
Seq Number: 3017865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00370	0.00370	mg/kg	05.19.17 11.59	U	1
Toluene	108-88-3	<0.00370	0.00370	mg/kg	05.19.17 11.59	U	1
Ethylbenzene	100-41-4	<0.00370	0.00370	mg/kg	05.19.17 11.59	U	1
m,p-Xylenes	179601-23-1	<0.00741	0.00741	mg/kg	05.19.17 11.59	U	1
o-Xylene	95-47-6	<0.00370	0.00370	mg/kg	05.19.17 11.59	U	1
Total Xylenes	1330-20-7	<0.00370	0.00370	mg/kg	05.19.17 11.59	U	1
Total BTEX		<0.00370	0.00370	mg/kg	05.19.17 11.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	92	%	80-120	05.19.17 11.59		
1,4-Difluorobenzene	540-36-3	81	%	80-120	05.19.17 11.59		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM

Patron Fed #004H

Sample Id: T5 - 3'
Lab Sample Id: 553116-031

Matrix: Soil
Date Collected: 05.09.17 11.30

Date Received: 05.13.17 10.00
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2590	24.5	mg/kg	05.21.17 08.32		5

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.16.17 08.00

Basis: Wet Weight

Seq Number: 3017668

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.16.17 18.34	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.16.17 18.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.16.17 18.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	98	%	70-135	05.16.17 18.34		
o-Terphenyl	84-15-1	102	%	70-135	05.16.17 18.34		

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.18.17 16.00

Basis: Wet Weight

Seq Number: 3017710

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.19.17 06.47	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.19.17 06.47	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.19.17 06.47	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.19.17 06.47	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.19.17 06.47	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.19.17 06.47	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.19.17 06.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	82	%	80-120	05.19.17 06.47		
1,4-Difluorobenzene	540-36-3	92	%	80-120	05.19.17 06.47		



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T5 - 4' Matrix: Soil Date Received: 05.13.17 10.00
Lab Sample Id: 553116-032 Date Collected: 05.09.17 11.30 Sample Depth: 4 ft
Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Tech: MGO % Moisture:
Analyst: MGO Date Prep: 05.20.17 20.43 Basis: Wet Weight
Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	325	4.87	mg/kg	05.21.17 08.39		1



Certificate of Analytical Results 553116



COG Operating LLC, Artesia, NM Patron Fed #004H

Sample Id: T5 - 9'
Lab Sample Id: 553116-033

Matrix: Soil
Date Collected: 05.09.17 11.30

Date Received: 05.13.17 10.00
Sample Depth: 9 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 05.20.17 20.43

Basis: Wet Weight

Seq Number: 3017818

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.9	4.87	mg/kg	05.21.17 08.47		1



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 **SQL** Method Quantitation Limit **LOQ** Limit of Quantitation
- DL** Method Detection Limit
- NC** Non-Calculable
- +** NELAC certification not offered for this compound.
- *** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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QC Summary 553116

COG Operating LLC

Patron Fed #004H

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017817

Matrix: Solid

Prep Method: E300P

Date Prep: 05.20.17

MB Sample Id: 724936-1-BLK

LCS Sample Id: 724936-1-BKS

LCSD Sample Id: 724936-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	251	100	253	101	90-110	1	20	mg/kg	05.21.17 01:11	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017818

Matrix: Solid

Prep Method: E300P

Date Prep: 05.20.17

MB Sample Id: 724937-1-BLK

LCS Sample Id: 724937-1-BKS

LCSD Sample Id: 724937-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	251	100	253	101	90-110	1	20	mg/kg	05.21.17 05:22	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017817

Matrix: Soil

Prep Method: E300P

Date Prep: 05.20.17

Parent Sample Id: 553116-006

MS Sample Id: 553116-006 S

MSD Sample Id: 553116-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	34.7	244	294	106	293	106	90-110	0	20	mg/kg	05.21.17 03:20	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017817

Matrix: Soil

Prep Method: E300P

Date Prep: 05.20.17

Parent Sample Id: 553116-007

MS Sample Id: 553116-007 S

MSD Sample Id: 553116-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	85.5	250	363	111	366	112	90-110	1	20	mg/kg	05.21.17 01:34	X

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017818

Matrix: Soil

Prep Method: E300P

Date Prep: 05.20.17

Parent Sample Id: 553116-026

MS Sample Id: 553116-026 S

MSD Sample Id: 553116-026 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.90	247	250	98	250	98	90-110	0	20	mg/kg	05.21.17 07:31	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3017818

Matrix: Soil

Prep Method: E300P

Date Prep: 05.20.17

Parent Sample Id: 553117-002

MS Sample Id: 553117-002 S

MSD Sample Id: 553117-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	17.7	250	284	107	285	107	90-110	0	20	mg/kg	05.21.17 05:45	



QC Summary 553116

COG Operating LLC

Patron Fed #004H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3017668

MB Sample Id: 724771-1-BLK

Matrix: Solid

LCS Sample Id: 724771-1-BKS

Prep Method: TX1005P

Date Prep: 05.16.17

LCSD Sample Id: 724771-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	985	99	923	92	70-135	6	35	mg/kg	05.16.17 10:14	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	946	95	914	91	70-135	3	35	mg/kg	05.16.17 10:14	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		105		107		70-135	%	05.16.17 10:14
o-Terphenyl	104		100		96		70-135	%	05.16.17 10:14

Analytical Method: TPH By SW8015 Mod

Seq Number: 3017668

Parent Sample Id: 553116-001

Matrix: Soil

MS Sample Id: 553116-001 S

Prep Method: TX1005P

Date Prep: 05.16.17

MSD Sample Id: 553116-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	999	993	99	908	91	70-135	9	35	mg/kg	05.16.17 11:12	
C10-C28 Diesel Range Hydrocarbons	<15.0	999	954	95	888	89	70-135	7	35	mg/kg	05.16.17 11:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		100		70-135	%	05.16.17 11:12
o-Terphenyl	103		97		70-135	%	05.16.17 11:12

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017709

MB Sample Id: 724845-1-BLK

Matrix: Solid

LCS Sample Id: 724845-1-BKS

Prep Method: SW5030B

Date Prep: 05.18.17

LCSD Sample Id: 724845-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0887	89	0.0805	81	70-130	10	35	mg/kg	05.18.17 13:04	
Toluene	<0.00200	0.0998	0.0946	95	0.0932	93	70-130	1	35	mg/kg	05.18.17 13:04	
Ethylbenzene	<0.00200	0.0998	0.103	103	0.100	100	71-129	3	35	mg/kg	05.18.17 13:04	
m,p-Xylenes	<0.00399	0.200	0.216	108	0.199	100	70-135	8	35	mg/kg	05.18.17 13:04	
o-Xylene	<0.00200	0.0998	0.101	101	0.0965	97	71-133	5	35	mg/kg	05.18.17 13:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	117		98		89		80-120	%	05.18.17 13:04
4-Bromofluorobenzene	119		109		93		80-120	%	05.18.17 13:04



QC Summary 553116

COG Operating LLC

Patron Fed #004H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017710

MB Sample Id: 724860-1-BLK

Matrix: Solid

LCS Sample Id: 724860-1-BKS

Prep Method: SW5030B

Date Prep: 05.18.17

LCSD Sample Id: 724860-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0784	78	0.0898	90	70-130	14	35	mg/kg	05.18.17 13:37	
Toluene	<0.00200	0.100	0.0841	84	0.106	106	70-130	23	35	mg/kg	05.18.17 13:37	
Ethylbenzene	<0.00200	0.100	0.0929	93	0.103	103	71-129	10	35	mg/kg	05.18.17 13:37	
m,p-Xylenes	<0.00401	0.200	0.184	92	0.208	104	70-135	12	35	mg/kg	05.18.17 13:37	
o-Xylene	<0.00200	0.100	0.0863	86	0.108	108	71-133	22	35	mg/kg	05.18.17 13:37	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	99		102		93		80-120	%	05.18.17 13:37			
4-Bromofluorobenzene	83		114		118		80-120	%	05.18.17 13:37			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017865

MB Sample Id: 724971-1-BLK

Matrix: Solid

LCS Sample Id: 724971-1-BKS

Prep Method: SW5030B

Date Prep: 05.19.17

LCSD Sample Id: 724971-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0828	83	0.0861	86	70-130	4	35	mg/kg	05.19.17 08:42	
Toluene	<0.00200	0.0998	0.0871	87	0.102	102	70-130	16	35	mg/kg	05.19.17 08:42	
Ethylbenzene	<0.00200	0.0998	0.0935	94	0.115	115	71-129	21	35	mg/kg	05.19.17 08:42	
m,p-Xylenes	<0.00399	0.200	0.185	93	0.230	115	70-135	22	35	mg/kg	05.19.17 08:42	
o-Xylene	<0.00200	0.0998	0.0870	87	0.0868	87	71-133	0	35	mg/kg	05.19.17 08:42	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	88		94		92		80-120	%	05.19.17 08:42			
4-Bromofluorobenzene	89		88		107		80-120	%	05.19.17 08:42			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017709

Parent Sample Id: 553111-004

Matrix: Soil

MS Sample Id: 553111-004 S

Prep Method: SW5030B

Date Prep: 05.18.17

MSD Sample Id: 553111-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0746	75	0.0744	74	70-130	0	35	mg/kg	05.18.17 14:10	
Toluene	<0.00199	0.0996	0.0779	78	0.0766	77	70-130	2	35	mg/kg	05.18.17 14:10	
Ethylbenzene	<0.00199	0.0996	0.0801	80	0.0732	73	71-129	9	35	mg/kg	05.18.17 14:10	
m,p-Xylenes	<0.00398	0.199	0.162	81	0.148	74	70-135	9	35	mg/kg	05.18.17 14:10	
o-Xylene	<0.00199	0.0996	0.0728	73	0.0783	78	71-133	7	35	mg/kg	05.18.17 14:10	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene			93		101		80-120	%	05.18.17 14:10			
4-Bromofluorobenzene			100		114		80-120	%	05.18.17 14:10			



QC Summary 553116

COG Operating LLC

Patron Fed #004H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017710

Parent Sample Id: 553116-024

Matrix: Soil

MS Sample Id: 553116-024 S

Prep Method: SW5030B

Date Prep: 05.18.17

MSD Sample Id: 553116-024 SD

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

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

Analytical Method: BTEX by EPA 8021B

Seq Number: 3017865

Parent Sample Id: 553122-013

Matrix: Soil

MS Sample Id: 553122-013 S

Prep Method: SW5030B

Date Prep: 05.19.17

MSD Sample Id: 553122-013 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	0.101	0.0813	80	0.0923	92	70-130	13	35	mg/kg	05.19.17 09:48	
Toluene	<0.00201	0.101	0.0743	74	0.0784	78	70-130	5	35	mg/kg	05.19.17 09:48	
Ethylbenzene	<0.00201	0.101	0.0764	76	0.0728	73	71-129	5	35	mg/kg	05.19.17 09:48	
m,p-Xylenes	<0.00402	0.201	0.153	76	0.156	78	70-135	2	35	mg/kg	05.19.17 09:48	
o-Xylene	0.00886	0.101	0.0759	66	0.0724	64	71-133	5	35	mg/kg	05.19.17 09:48	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		119		80-120	%	05.19.17 09:48
4-Bromofluorobenzene	103		117		80-120	%	05.19.17 09:48

Selling the Standard since 1990
Stanford, Texas (281-240-4200)
Dallas, Texas (214-902-0300)

CHAIN OF CUSTODY

Page 1 of 4

Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)

San Antonio, Texas (210-600-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

www.kidnetc.com

Client / Reporting Information						Project Information							Analytical Information								Matrix Codes								
Company Name / Branch: CDG Operating LLC Company Address: 2407 PECOS Avenue Artesia NM 86219						Project Name/Number: Patron Field #004H Project Location: Patron Field #004H																							
Email: dheal@concho.com Phone No: 875-748-1553						Invoice To: COG Operating LLC Attn: Robert McNeill 800 W. Illinois Midland TX 79701																							
Project Contact: Aaron Lieb						PO Number:																							
Sampler's Name: Aaron Lieb																													
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Metric	# of bottles	ID	NaOH/Zn Acetate	HVC3	PDSO4	NaOH	NH4SO4	MEOH	NONE															
1	T1 - SURF	SURF	5/17/17	9:30 AM	S	1									X X X X	TPH													
2	T1 -	1'				1									X X X X	BTEX													
3	T1 -	2'				1									X X X X	Chloride													
4	T1 -	3'				1									X X X X														
5	T1 -	4'				1									X X X X														
6	T1 -	6'				1									X X X X														
7	T1 -	7.5'				1									X X X X														
8																													
9																													
10																													
Turnaround Time (Business days)						Data Deliverable Information						Notes:																	
☐ Same Day TAT						☐ 5 Day TAT						☐ Level II Std QC						☐ Level IV (Full Data Pkg / raw data)											
☐ Next Day EMERGENCY						☐ 7 Day TAT						☐ Level III Std DC+ Forms						☐ TRRP Level IV											
☐ 2 Day EMERGENCY						☐ Contract TAT						☐ Level 3 ICIP Forms						☐ UST / RG -411											
☐ 3 Day EMERGENCY												☐ TRRP Checklist																	
TAT Starts Day received by Lab, if received by 5:00 pm															FED-EX / UPS Tracking #														
Relinquished by Sampler: [Signature]															Date Time: 5/17/17 Received By: [Signature]														
Relinquished by: [Signature]															Date Time: 5/17/17 Relinquished By: [Signature]														
Relinquished by: [Signature]															Date Time: 5/17/17 Relinquished By: [Signature]														
Relinquished by: [Signature]															Date Time: 5/17/17 Relinquished By: [Signature]														
Temp: 3.7 IR ID: R-B																													

Temp: 3.7 IR ID: R-8
CF: (0.6; -0.2°C)
(6.23; +0.2°C)
Corrected Temp.: 3.5



Selling the Standard since 1990
Stafford, Texas (281-240-4200)
Dallas, Texas (214-902-0300)

CHAIN OF CUSTODY

Page 2 of 4

San Antonio, Texas (210-569-5304)
Midland, Texas (432-704-6251)

Phoenix, Arizona (602-955-0500)

www.xenco.com

Client / Reporting Information				Project Information				Analytical Information		Matrix Codes	
Company Name / Branch: COG Operating LLC				Project Name/Number: Patron Fed #004H				Xenco Queue #		Xenco Job #	
Company Address: 2407 PECOS Avenue Austin TX 78710				Project Location: Patron Fed #004H							
Email: dave@xenco.com dave@xenco.com rshelley@xenco.com				Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Midland TX 79701							
Project Contact: Aaron Lieb				PO Number:							
Sampler's Name: Aaron Lieb											
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles				
1	T2 - Surf	Surf	5/17	10:00 AM	S	1					
2	T2 - 1'										
3	T2 - 2'										
4	T2 - 3'										
5	T3 - Surf										
6	T3 - 1'										
7	T3 - 2'										
8	T3 - 3'										
9	T3 - 4'										
10	T3 - 6'										
Turnaround Time (Business days)							Data Deliverable Information				
☐ Same Day TAT							☐ Level II Std QC				
☐ Next Day EMERGENCY							☐ Level III Std QC + Forms				
☐ 2 Day EMERGENCY							☐ Level 3 (CLP Forms)				
☐ 3 Day EMERGENCY							☐ TRRP Checklist				
TAT Starts Day received by Lab, if received by 5:00 pm							FED-EX / UPS: Tracking #				
Relinquished by Sampler:							Relinquished By:				
Relinquished by:							Relinquished By:				
Relinquished by:							Relinquished By:				
Date Time:							Date Time:				
Date Time:							Date Time:				
Received By:							Received By:				
Received By:							Received By:				
Custody Seal #							Preserved where applicable				
On Ice							On Ice				
Temp: 3.7							Temp: 3.5				
CF: (0.6: -0.2°C)							CF: (0.6: -0.2°C)				
Corrected Temp: 3.5							Corrected Temp: 3.5				

CHAIN OF CUSTODY

Page 3 of 4

Page 3 of 4

Selling the Standard since 1990
Stafford, Texas - (281-240-4200)
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San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

www.xdinc.com

Phoenix, Arizona (480-355-0900)

Kenzo Onoda &

Xenoco Job #

553116

Client / Reporting Information		Project Information		Analytical Information		Matrix Codes	
Company Name / Branch:	COG Operating LLC	Project Name/Number:	Patron Fed #004H				
Company Address:	2407 PECOS AVENUE ARLISDA NM 88210	Project Location:	Patron Fed #004H				
Email:	Phone No: 575-748-1853 drew12@concho.com mashell@concho.com	Invoice To:	COG Operating LLC Attn: Robert McNeill 6000 W. Illinois Midland TX 79701				
Project Contact:	Aaron Lieb	PO Number:					
Sampler's Name: Aaron Lieb							

[illegible]

☐ Same Day TAT	☐ 6 Day TAT	☐ Level II SID QC	☐ Level IV (Full Data Pkg./raw data)	
☐ Next Day EMERGENCY	☐ 7 Day TAT	☐ Level III SID QC + Forms	☐ TRRP Level IV	
☐ 2 Day EMERGENCY	☐ Contract TAT	☐ Level 3 (CLP Forms)	☐ UST / RG -411	
☐ 3 Day EMERGENCY		☐ TRRP Checklist		
TAT Starts Day received by Lab, if received by 5:00 pm				
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING CARRIER DELIVERY				
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:
Relinquished by:	5/12/17	11:00 AM	11:00 AM	5-12-17
Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:
3		3	4	
Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable
5		5		
FED-EX / UPS: Tracking #				
Received By:	Date Time:	Received By:	Date Time:	
2		2		
Received By:	Date Time:	Received By:	Date Time:	
4		4		
On Ice	Temp:	IR ID:		
CF (0.6: 0.2°C)	3.7	R-8		

Notice: Notice. Signature of this document an acknowledgment of sample conditions a valid purchase order from client company to Xerox, its affiliates and subsidiaries. It assigns standard terms and conditions of service. Xerox will be liable only for the cost of any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xerox. A minimum charge of \$75 will be applied to each project. Xerox's liability will be limited to the cost of samples. Any samples received by Xerox but not returned will be entered unless previously deposited under a valid signed client contract.

Temp: 3.7 IR ID: R-8
CF (0.6: -0.2°C)
(6.23: +0.2°C)
Corrected Temp: 3.5

CHAIN OF CUSTODY

Page 4 of 4

Setting the Standard since 1990
Stafford-Tenn. (261-240-4200)

Dallas Texas (214-902-0300)

Dallas Texas (214-902-0300)

San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0800)

www.xenico.com

Client / Reporting Information								Project Information						Analytical Information								
Company Name / Branch:				COG Operating LLC				Project Name/Number:				Palton Fed #004H										
Company Address:				3497 PECOS Avenue Adelaide NM 86210				Project Location:				Patron Fed #004H										
Email:				dina@concho.com Phone No: 575-748-1543				Invoice To:				COG Operating LLC										
Project Contact:				Aaron Lieb				Attn: Robert McNeil				800 W. Illinois										
Sampler's Name:				Aaron Lieb				PO Number:				Midland TX 79701										
No.	Field ID / Point of Collection			Collection		Matrix		# of bottles	Number of preserved bottles		Notes											
1	T5-	Surf	Sample Depth	Date	Time	Metric	# of bottles	HCl	NaOH/Zn Acetate	PtNO ₃	H ₂ SO ₄	NaOH	Nitric/SO ₄	MECH	NONE							
2	T5-	1'	Surf	5/11/17	11:30 AM	S	1									X X X X	TPH					
3	T5-	3'	2				1									X X X X	BTEX					
4	T5-	4'	3				1									X X X X	Chloride					
5	T5-	9'	4				1									X X X X						
6	T5-	9'	9				1															
7																						
8																						
9																						
10																						
Turnaround Time Business days				Data Deliverable Information				Notes:														
☐ Same Day TAT				☐ 5 Day TAT				☐ Level II SID DC				☐ Level IV (Full Data Pkg / raw data)										
☐ Next Day EMERGENCY				☐ 7 Day TAT				☐ Level III SID GC+ Forms				☐ TRRP Level IV										
☐ 2 Day EMERGENCY				☐ Contract TAT				☐ Level 3 (CLP Forms)				☐ UST / RQ -411										
☐ 3 Day EMERGENCY								☐ TRRP Checklist														
TAT Starts Day received by Lab, if received by 5:00 pm																						
Relinquished By: [Signature]				Date Time: 5/11/17 11:00 AM				Received By: [Signature]				Date Time: 5-12-17				FED-EX / UPS Tracking #						
Relinquished By: [Signature]				Date Time: 5/11/17 11:00 AM				Received By: [Signature]				Date Time: 5-12-17				On Site Co Temp: 3.7 IR ID-R						
Relinquished By: [Signature]				Date Time: 5/11/17 11:00 AM				Received By: [Signature]				Date Time: 5-12-17				IR ID-R						

Temp: 37 IR ID: R-8

 $CF:(0.6; -0.2^{\circ}C)$

(6-23: +0.2°)

Corrected Temp: 3.5



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

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

Work Order #: 553116

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	N/A
#21 VOC samples have zero headspace?	N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Jessica Kramer

Date: 05/15/2017

Checklist reviewed by:

Holly Taylor

Holly Taylor

Date: 05/16/2017



Certificate of Analysis Summary 553606
COG Operating LLC, Artesia, NM
Project Name: Patron 23 Fed #4H



Project Id:

Contact: Aaron Lieb

Project Location: Patron 23 Fed #4H

Date Received in Lab: Sat May-20-17 10:30 am

Report Date: 26-MAY-17

Project Manager: Liz Givens

Analysis Requested	Lab Id: Field Id: Depth: Matrix: Sampled:	553606-001 North-Surface SOIL May-17-17 13:15	553606-002 North-1' 1 ft SOIL May-17-17 13:15	553606-003 South-Surface SOIL May-17-17 13:15	553606-004 South-1' 1 ft SOIL May-17-17 13:15	553606-005 East-Surface SOIL May-17-17 13:15	553606-006 East-1' 1 ft SOIL May-17-17 13:15
		Extracted: Analyzed: Units/RL:	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: Units/RL:
Inorganic Anions by EPA 300/300.1 SUB: TX104704215		May-26-17 02:27 May-26-17 04:02 mg/kg RL	May-26-17 02:27 May-26-17 04:49 mg/kg RL	May-26-17 02:27 May-26-17 04:58 mg/kg RL	May-26-17 02:27 May-26-17 05:08 mg/kg RL	May-26-17 02:27 May-26-17 05:17 mg/kg RL	May-26-17 02:27 May-26-17 05:26 mg/kg RL
Chloride		<9.60 9.60	<9.69 9.69	78.7 9.63	47.9 9.78	762 9.09	71.2 9.94

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

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

Brandi Ritcherson

Brandi Ritcherson
Project Manager



Certificate of Analysis Summary 553606

COG Operating LLC, Artesia, NM

Project Name: Patron 23 Fed #4H



Project Id:

Contact: Aaron Lieb

Project Location: Patron 23 Fed #4H

Date Received in Lab: Sat May-20-17 10:30 am

Report Date: 26-MAY-17

Project Manager: Liz Givens

Analysis Requested		Lab Id:	553606-007	553606-008			
		Field Id:	West-Surface	West-1'			
		Depth:		1 ft			
		Matrix:	SOIL	SOIL			
		Sampled:	May-17-17 13:15	May-17-17 13:15			
		Extracted:	May-26-17 02:27	May-26-17 02:27			
		Analyzed:	May-26-17 05:36	May-26-17 05:45			
		Units/RL:	mg/kg RL	mg/kg RL			
			18.2 9.84	15.2 9.88			
Inorganic Anions by EPA 300/300.1							
SUB: TX104704215							
Chloride							

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

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

Brandi Ritcherson

Brandi Ritcherson
Project Manager

Analytical Report 553606

**for
COG Operating LLC**

Project Manager: Aaron Lieb

Patron 23 Fed #4H

26-MAY-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

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



26-MAY-17

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

Reference: XENCO Report No(s): 553606
Patron 23 Fed #4H
Project Address: Patron 23 Fed #4H

Aaron Lieb:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 553606. 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. 553606 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Brandi Ritcherson

Project Manager

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Sample Cross Reference 553606



COG Operating LLC, Artesia, NM

Patron 23 Fed #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North-Surface	S	05-17-17 13:15	N/A	553606-001
North-1'	S	05-17-17 13:15	- 1 ft	553606-002
South-Surface	S	05-17-17 13:15	N/A	553606-003
South-1'	S	05-17-17 13:15	- 1 ft	553606-004
East-Surface	S	05-17-17 13:15	N/A	553606-005
East-1'	S	05-17-17 13:15	- 1 ft	553606-006
West-Surface	S	05-17-17 13:15	N/A	553606-007
West-1'	S	05-17-17 13:15	- 1 ft	553606-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Patron 23 Fed #4H

Project ID:

Work Order Number(s): 553606

Report Date: 26-MAY-17

Date Received: 05/20/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM Patron 23 Fed #4H

Sample Id: North-Surface
Lab Sample Id: 553606-001

Matrix: Soil
Date Collected: 05.17.17 13.15

Date Received: 05.20.17 10.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: DHE

% Moisture:

Analyst: DHE

Date Prep: 05.26.17 02.27

Basis: Wet Weight

Seq Number: 3018297

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.60	9.60	mg/kg	05.26.17 04.02	U	1



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM Patron 23 Fed #4H

Sample Id: North-1'

Lab Sample Id: 553606-002

Matrix: Soil

Date Collected: 05.17.17 13.15

Date Received: 05.20.17 10.30

Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: DHE

Analyst: DHE

Seq Number: 3018297

Date Prep: 05.26.17 02.27

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.69	9.69	mg/kg	05.26.17 04.49	U	1



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM Patron 23 Fed #4H

Sample Id: South-Surface
Lab Sample Id: 553606-003

Matrix: Soil
Date Collected: 05.17.17 13.15

Date Received: 05.20.17 10.30

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: DHE

% Moisture:

Analyst: DHE

Date Prep: 05.26.17 02.27

Basis: Wet Weight

Seq Number: 3018297

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	78.7	9.63	mg/kg	05.26.17 04.58		1



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM

Patron 23 Fed #4H

Sample Id: South-1'

Matrix: Soil

Date Received: 05.20.17 10.30

Lab Sample Id: 553606-004

Date Collected: 05.17.17 13.15

Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: DHE

% Moisture:

Analyst: DHE

Date Prep: 05.26.17 02.27

Basis: Wet Weight

Seq Number: 3018297

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	47.9	9.78	mg/kg	05.26.17 05.08		1



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM

Patron 23 Fed #4H

Sample Id: East-Surface

Matrix: Soil

Date Received: 05.20.17 10.30

Lab Sample Id: 553606-005

Date Collected: 05.17.17 13.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: DHE

% Moisture:

Analyst: DHE

Date Prep: 05.26.17 02.27

Basis: Wet Weight

Seq Number: 3018297

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	762	9.09	mg/kg	05.26.17 05.17		1



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM Patron 23 Fed #4H

Sample Id: East-1'
Lab Sample Id: 553606-006

Matrix: Soil
Date Collected: 05.17.17 13.15

Date Received: 05.20.17 10.30
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1
Tech: DHE
Analyst: DHE
Seq Number: 3018297

Date Prep: 05.26.17 02.27

Prep Method: E300P
% Moisture:
Basis: Wet Weight
SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	71.2	9.94	mg/kg	05.26.17 05.26		1



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM

Patron 23 Fed #4H

Sample Id: West-Surface

Matrix: Soil

Date Received: 05.20.17 10.30

Lab Sample Id: 553606-007

Date Collected: 05.17.17 13.15

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: DHE

% Moisture:

Analyst: DHE

Date Prep: 05.26.17 02.27

Basis: Wet Weight

Seq Number: 3018297

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.2	9.84	mg/kg	05.26.17 05.36		1



Certificate of Analytical Results 553606



COG Operating LLC, Artesia, NM

Patron 23 Fed #4H

Sample Id: West-1'

Matrix: Soil

Date Received: 05.20.17 10.30

Lab Sample Id: 553606-008

Date Collected: 05.17.17 13.15

Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: DHE

% Moisture:

Analyst: DHE

Date Prep: 05.26.17 02.27

Basis: Wet Weight

Seq Number: 3018297

SUB: TX104704215

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.2	9.88	mg/kg	05.26.17 05.45		1



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 **SQL** 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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Certified and approved by numerous States and Agencies.

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2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282

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(281) 240-4200	(281) 240-4280
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	



QC Summary 553606

COG Operating LLC

Patron 23 Fed #4H

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3018297

Matrix: Solid

Prep Method: E300P

Date Prep: 05.26.17

MB Sample Id: 725243-1-BLK

LCS Sample Id: 725243-1-BKS

LCSD Sample Id: 725243-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<1.00	10.0	10.4	104	10.4	104	80-120	0	20	mg/kg	05.26.17 03:06	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3018297

Matrix: Soil

Prep Method: E300P

Date Prep: 05.26.17

Parent Sample Id: 553604-001

MS Sample Id: 553604-001 S

MSD Sample Id: 553604-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	23.9	97.7	126	105	127	106	80-120	1	20	mg/kg	05.26.17 06:04	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3018297

Matrix: Soil

Prep Method: E300P

Date Prep: 05.26.17

Parent Sample Id: 553606-001

MS Sample Id: 553606-001 S

MSD Sample Id: 553606-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.60	96.0	105	109	104	108	80-120	1	20	mg/kg	05.26.17 04:11	



Midland, Texas (432-704-5251)

www.xetpro.com

Phoenix, Arizona (480-355-0900)

CHAIN OF CUSTODY

Page 7 of 7

Client / Reporting Information							Project Information							Analytical Information							Matrix Codes																											
Company Name / Branch: COG Operating LLC							Project Name/Number: Patron 23 Fed #4H																																									
Company Address: 2407 PECOS AVENUE ARLIS NM 82210							Project Location:																																									
Email: daniel@concho.com mattstall@concho.com							Phone No: 876-746-1553							Patron 23 Fed #4H																																		
Project Contact: Aaron Lieb							Investigator To: COG Operating LLC Airt: Robert McNeill 600 W. Illinois Midland TX 79701																																									
Sample's Name: Aaron Lieb							PD Number:																																									
No.	Field ID / Point of Collection						Collection							Number of preserved bottles							TPH							BTEX							Chloride							Field Comments						
	Sample Depth	Date	Time	Metric	# of bottles	I	Via OH/Zn Acetate	HNO ₃	H ₂ SO ₄	NaOH	NaHSO ₄	MEOM	NONE																																			
1	NORTH - SURF	SURF	5/17/17	PM 5	1									X																																		
2	NORTH - SURF	SURF	5/17/17	PM 5	1									X																																		
3	SOUTH - SURF	SURF	5/17/17	PM 5	1									X																																		
4	SOUTH - SURF	SURF	5/17/17	PM 5	1									X																																		
5	EAST - SURF	SURF	5/17/17	PM 5	1									X																																		
6	EAST - SURF	SURF	5/17/17	PM 5	1									X																																		
7	WEST - SURF	SURF	5/17/17	PM 5	1									X																																		
8	WEST - SURF	SURF	5/17/17	PM 5	1									X																																		
9																																																
10																																																
Turnaround Time (Business days)							Data Deliverable Information							Notes:																																		
☐ Same Day TAT ☐ 6 Day TAT							☐ Level II Std QC ☐ Level IV (Full Data Pkg raw data)																																									
☐ Next Day EMERGENCY ☐ 7 Day TAT							☐ Level III Std QC + Forms ☐ TRRP Level IV																																									
☐ 2 Day EMERGENCY ☐ Contract TAT							☐ Level 3 (CLP Forms) ☐ UST / RG 411																																									
☐ 3 Day EMERGENCY							☐ TRRP Checklist																																									
TAT Starts Day received by Lab, if received by 5:00 pm																																																
Relinquished By Sample:							Day Type: 11:00 AM Received By: 11:00 AM Relinquished By: 5/17/17							Date Time: 5/17/17							Received By: 5/17/17																											
Relinquished By:							Date Time: 5/17/17							Received By: 5/17/17							Custody Seal # 4																											
Relinquished By:							Date Time: 5/17/17							Received By: 5/17/17							On Ice [X] Temp: 2.4 IR ID: R																											

Matrix Codes

- W = Water
- S = Soils/Sediment
- GW = Ground Water
- DW = Drinking Water
- P = Product
- SW = Surface water
- SL = Sludge
- DW-Ocean/Sea Water
- WI = Waste
- O = Oil
- WW= Waste Water
- A = Air

Temp: 2.4 IR ID: R-8
CF: (0.6: -0.2°C)
(6.23: +0.2°C)
Corrected Temp: 2.2



Inter-Office Shipment #: 1044014

Date Printed: Tue May-23-17 11:11 am Page 1 of 1

Date/Time: 05/22/17 08:41

Created by: Jessica Kramer

Please send report to: Liz Givens

Lab# From: Midland

Delivery Priority: Fedex

Address: 1211 W. Florida Ave, Midland TX 79701

Lab# To: Houston

Air Bill No.: 779201410522

Phone:

E-Mail: liz.givens@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
553606-001	S	North Surface	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	
553606-002	S	North-1'	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	
553606-003	S	South Surface	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	
553606-004	S	South-1'	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	
553606-005	S	East Surface	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	
553606-006	S	East-1'	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	
553606-007	S	West Surface	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	
553606-008	S	West-1'	05/17/17 13:15	E300	Inorganic Anions by EPA 300/300.1	05/29/17	06/14/17	LIG	CL	

Inter Office Shipment or Sample Comments:

Relinquished By:

Marithza Anaya

Marithza Anaya

Received By:

Mitsuko Konuma

Mitsuko Konuma

Date Relinquished: 05/22/2017

Date Received: 05/23/2017 09:15

Cooler Temperature: 1.0



XENCO Laboratories



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 1044014

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sent By: Jessica Kramer

Date Sent: 05/22/2017 08:41 AM

Received By: Mitsuko Konuma

Date Received: 05/23/2017 09:15 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	N/A
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	No
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Mitsuko Konuma

Mitsuko Konuma

Date: 05/23/2017



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 05/20/2017 10:30:00 AM

Work Order #: 553606

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)?	3.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	N/A
#5 *Custody Seals intact on shipping container/ cooler?	N/A
#6 Custody Seals intact on sample bottles?	N/A
#7 *Custody Seals Signed and dated?	N/A
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	No
#11 Chain of Custody signed when relinquished/ received?	Yes
#12 Chain of Custody agrees with sample label(s)?	Yes
#13 Container label(s) legible and intact?	Yes
#14 Sample matrix/ properties agree with Chain of Custody?	Yes
#15 Samples in proper container/ bottle?	Yes
#16 Samples properly preserved?	Yes
#17 Sample container(s) intact?	Yes
#18 Sufficient sample amount for indicated test(s)?	Yes
#19 All samples received within hold time?	Yes
#20 Subcontract of sample(s)?	Yes Houston
#21 VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Jessica Kramer

Date: 05/22/2017

Checklist reviewed by:

Liz Givens

Liz Givens

Date: 05/22/2017



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

December 04, 2017

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: PATRON 23 FED #4 H

Enclosed are the results of analyses for samples received by the laboratory on 11/15/17 14:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-9. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colliert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

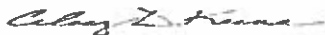
Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: PATRON 23 FED #4 H
Project Number: NONE GIVEN
Project Manager: SHELDON HITCHCOCK
Fax To: NONEReported:
04-Dec-17 16:59

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
T-1 11'	H703187-01	Soil	14-Nov-17 11:30	15-Nov-17 14:10
T-2 6'	H703187-02	Soil	14-Nov-17 10:00	15-Nov-17 14:10
T-2 11'	H703187-03	Soil	14-Nov-17 10:30	15-Nov-17 14:10

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: PATRON 23 FED #4 H
Project Number: NONE GIVEN
Project Manager: SHELDON HITCHCOCK
Fax To: NONEReported:
04-Dec-17 16:59**T-1 11'**
11703187-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

Green Analytical Laboratories**Soluble (DI Water Extraction)**

Chloride	82.0		10.0	mg/kg wet	10	B711210	JDA	29-Nov-17	EPA300.0	
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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: PATRON 23 FED #4 H
Project Number: NONE GIVEN
Project Manager: SHELDON HITCHCOCK
Fax To: NONEReported:
04-Dec-17 16:59**T-2 6'**
H703187-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	--------------------	-------	----------	-------	---------	----------	--------	-------

Green Analytical Laboratories**Soluble (DI Water Extraction)**

Chloride	16.0		10.0	mg/kg wet	10	B711210	JDA	29-Nov-17	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210Project: PATRON 23 FED #4 H
Project Number: NONE GIVEN
Project Manager: SHELDON HITCHCOCK
Fax To: NONEReported:
04-Dec-17 16:59**T-2 11'**
H703187-03 (Soil)

Analyte	Result	NDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	--------------------	-------	----------	-------	---------	----------	--------	-------

Green Analytical Laboratories**Soluble (DI Water Extraction)**

Chloride	325		10.0	mg/kg wet	10	B711210	JDA	29-Nov-17	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 COG OPERATING
 P. O. BOX 1630
 ARTESIA NM, 88210

 Project: PATRON 23 FED #4 H
 Project Number: NONE GIVEN
 Project Manager: SHELDON HITCHCOCK
 Fax To: NONE

 Reported:
 04-Dec-17 16:59

Soluble (DI Water Extraction) - Quality Control
Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711210 - General Prep - Wet Chem										
Blank (B711210-BLK1)				Prepared 27-Nov-17 Analyzed 28-Nov-17						
Chloride	ND	10.0	mg/kg wet							
LCS (B711210-BS1)				Prepared 27-Nov-17 Analyzed 28-Nov-17						
Chloride	247	10.0	mg/kg wet	250		98.6	85-115			
LCS Dup (B711210-BSD1)				Prepared 27-Nov-17 Analyzed 28-Nov-17						
Chloride	247	10.0	mg/kg wet	250		98.8	85-115	0.211	20	

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
*	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

PG 1 of 1

Company Name: Concho Resources		P.O. #:		BILL TO												ANALYSIS REQUEST											
Project Manager: Sheldon Hitchcock		Company: COG																									
Address: 2407 Pecos Avenue		Attn: Robert McNeill																									
City: Artesia		Address:																									
Phone #: 575-703-6475		City:																									
Fax #: 575-703-6475		State: NM Zip: 88210																									
Project #:		Project Owner: Concho																									
Project Location:		State: NM Zip: 88210																									
Sampler Name: Sheldon Hitchcock		Phone #:																									
FOR LAB USE ONLY		Fax #:																									
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER	DATE	TIME	Chlorides EPA 300												
H703187	T-1 11'	6	1	/	/	/	/	/	/	/	/	/	11/14/17	11:30													
	T-2 6'	6	1	/	/	/	/	/	/	/	/	/		10:00													
	T-2 11'	6	1	/	/	/	/	/	/	/	/	/		10:30													
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Relinquished By: Sheldon Hannon		Date: 11-15-17		Received By: [Signature]		Time: 8:10		Received By: [Signature]		Time: 8:10		Phone Result: [] Yes [] No		Fax Result: [] Yes [] No		Add'l Phone #: [] Add'l Fax #: []											
Delivered By: (Circle One) 4.12		Sample Condition Cool Impact [] Yes [] No		CHECKED BY: [Signature]		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35											
Sampler - UPS - Bus - Other: []		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35		Time: 4:35											

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



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December 04, 2017

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: PATRON 23 FED #4 H

Enclosed are the results of analyses for samples received by the laboratory on 11/15/17 14:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-9. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: PATRON 23 FED #4 H Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 04-Dec-17 17:01
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Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EAST 0.5'	H703188-01	Soil	14-Nov-17 12:00	15-Nov-17 14:10

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING P. O. BOX 1630 ARTESIA NM, 88210	Project: PATRON 23 FED #4 H Project Number: NONE GIVEN Project Manager: SHELDON HITCHCOCK Fax To: NONE	Reported: 04-Dec-17 17:01
--	---	------------------------------

**EAST 0.5'
H703188-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Green Analytical Laboratories

Soluble (DI Water Extraction)

Chloride	315		10.0	mg/kg wet	10	B711210	JDA	29-Nov-17	EPA300.0	
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*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
P. O. BOX 1630
ARTESIA NM, 88210

Project: PATRON 23 FED #4 H
Project Number: NONE GIVEN
Project Manager: SHELDON HITCHCOCK
Fax To: NONE

Reported:
04-Dec-17 17:01

Soluble (DI Water Extraction) - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711210 - General Prep - Wet Chem										
Blank (B711210-BLK1)										
				Prepared 27-Nov-17 Analyzed 28-Nov-17						
Chloride	ND	10.0	mg/kg wet							
LCS (B711210-BS1)										
				Prepared 27-Nov-17 Analyzed 28-Nov-17						
Chloride	247	10.0	mg/kg wet	250		98.6	85-115			
LCS Dup (B711210-BSD1)										
				Prepared 27-Nov-17 Analyzed 28-Nov-17						
Chloride	247	10.0	mg/kg wet	250		98.8	85-115	0.211	20	

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

