

June 8, 2018

Olivia Yu
Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM 88240

Ryan Mann
New Mexico State Land Office
1001 S. Atkinson
Roswell, NM 88230

Re: Closure Letter
Momentum 36 State #001
API #: 30-025-37517
RP#: 1RP-4726
Unit Letter K Section 36, Township 25S, Range 35E
Lea County, NM

Ms. Yu/Mr. Mann,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Momentum 36 State #001. This release occurred on June 9, 2017. Following the release an assessment of impacted soils was conducted. A remediation work plan was submitted to and subsequently approved by the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO). A copy of the approved work plan is attached in Appendix V.

BACKGROUND

The Momentum 36 State #001 release is located in Unit Letter K, Section 36, Township 25 South and Range 35 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.084114 North and -103.323724 West.

On June 9, 2017, a one-half (1/2) inch nipple failed release of approximately two (2) barrels (bbls) of oil and one-hundred and twenty-eight (128) bbls of produced water. A vacuum truck was dispatched to recover freestanding fluids. Approximately one and one-half (1.5) bbls of oil and fifty (50) bbls of produced water were recovered.

Remediation activities were conducted in accordance with the approved work plan and NMOCD/NMSLO stipulations. The analytical results from the NMOCD and NMSLO stipulated confirmation soil sampling activities are summarized in the tables below. A site diagram of the excavated area is presented in Appendix I.

APPROVED

By Olivia Yu at 9:56 am, Jun 15, 2018

**NMOCD approves
1RP-4726 for closure.**

GROUNDWATER AND SITE RANKING

According to the New Mexico Office of the State Engineer (NMOSE) groundwater in the project vicinity is approximately two-hundred and thirty (230) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. 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

CONFIRMATION SOIL SAMPLING RESULTS

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)
BTTM-1	1	<0.002	<0.002	121	<15.0
BTTM-2	1	<0.002	<0.002	17.7	<15.0
BTTM-3	1	<0.002	<0.002	<5.00	129
BTTM-4	1	<0.002	<0.002	<4.92	<15.0
BTTM-5	1	<0.002	<0.002	<4.98	1400
T-6/T-5	Sidewall	<0.002	<0.002	37.4	116
T-5/T-3	Sidewall	<0.002	<0.002	<4.93	<15.0
T-3/T-2	Sidewall	<0.002	<0.002	<4.97	57.3
T-8/T-7	Sidewall	<0.002	<0.002	530	626
SW-1	Sidewall	<0.002	<0.002	93.1	<15.0
SW-2	Sidewall	<0.002	<0.002	510	<15.0
SW-3	Sidewall	<0.002	<0.002	24.3	<15.0
SW-4	Sidewall	<0.002	<0.002	7.37	<15.0
SW-5	Sidewall	<0.002	<0.002	58.7	49.1
SW-6	Sidewall	<0.002	<0.002	371	53.8
SW-7	Sidewall	<0.002	<0.002	<4.91	<15.0
SW-8	Sidewall	<0.002	<0.002	<4.98	<15.0
SW-9	Sidewall	<0.002	<0.002	<4.92	<15.0
SW-10	Sidewall	<0.002	<0.002	<4.98	<15.0
SW-11	Sidewall	<0.002	<0.002	<4.95	<15.0
SW-12	Sidewall	<0.002	<0.002	<4.93	202
SW-13	Sidewall	<0.002	<0.002	<4.90	<15.0
SW-14	Sidewall	<0.002	<0.002	<4.90	<15.0
SW-15	Sidewall	<0.002	<0.002	<4.93	<15.0
SW-16	Sidewall	<0.002	<0.002	<4.93	<15.0

CONFIRMATION SOIL SAMPLING RESULTS CONTINUED

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)
SW-17	Sidewall	<0.002	<0.002	<4.99	<15.0
SW-18	Sidewall	<0.002	<0.002	<4.98	<15.0
SW-19	Sidewall	<0.002	<0.002	<4.90	<15.0
SW-20	Sidewall	<0.002	<0.002	<5.00	<15.0

REMEDIAL ACTIONS

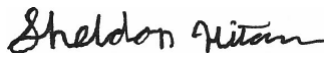
- The impacted area in the vicinity of sample locations T-2, T-5, and T-8 was excavated to a depth of (one) 1 foot BGS.
- The impacted area in the vicinity of sample locations T-1, T-3, T-4, T-6, and T-7 was excavated to a depth of one-half (0.5) feet BGS.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Confirmation soil samples were taken from the locations designated in the approved work plan. The first sample at sample location SW-4 was above NMOCD RRAL's for TPH and Chloride therefore the excavation was extended to the south approximately three (3) feet and another sidewall sample was collected. The second sample confirmed that all of the soil in that area above RRAL's was successfully removed. Analytical reports and chain-of-custody forms are attached in Appendix VI.
- Upon receipt of acceptable confirmation soil sampling results the excavation was backfilled with sand and contoured to match the surrounding terrain.
- The excavation will be seeded with BLM LPC seed mixture this season.

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the New Mexico State Land Office grant closure approval for the Momentum 36 State #001 incident that occurred on June 9, 2017.

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

Sincerely,



Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

Enclosed:

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

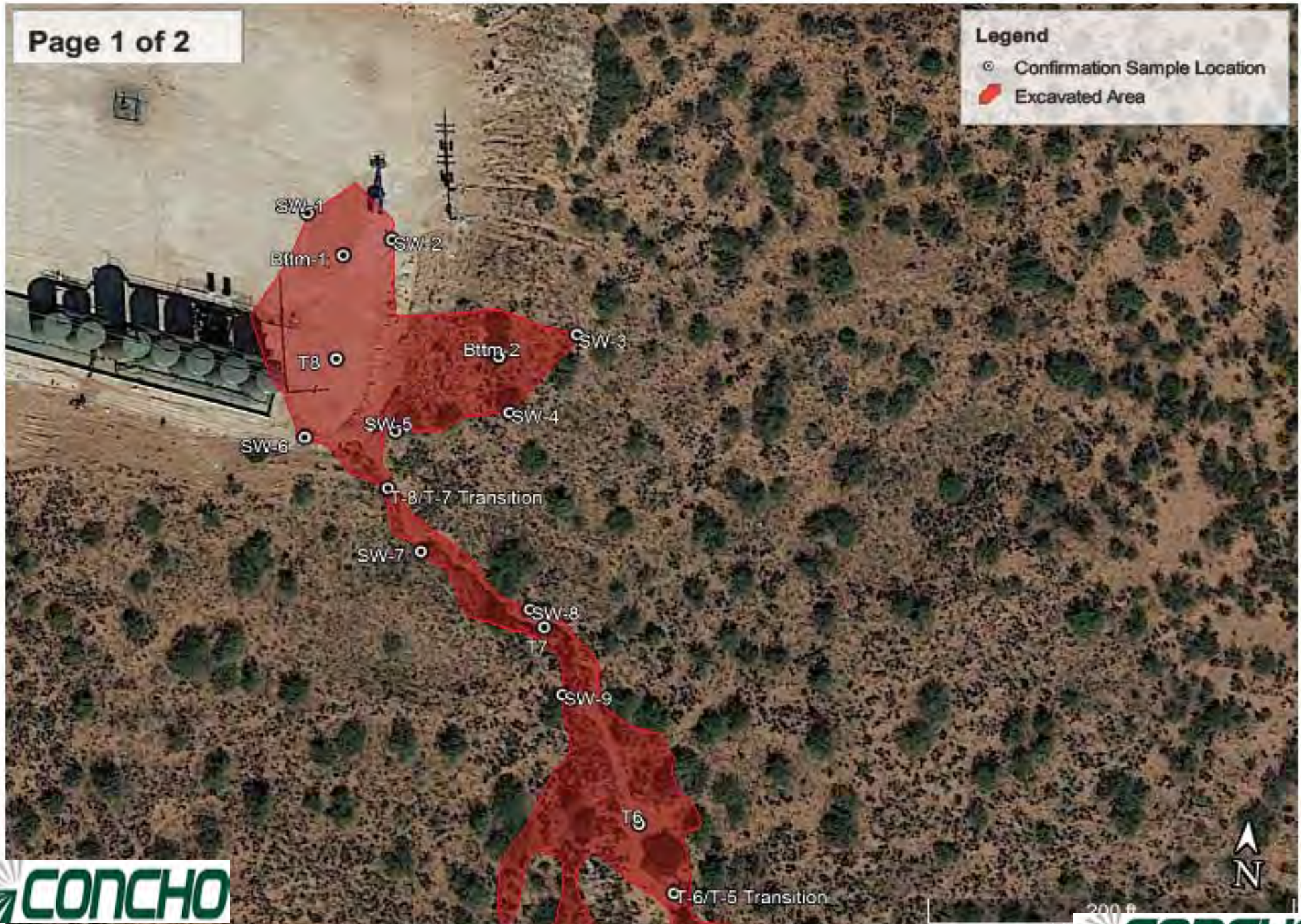
APPENDIX I

Momentum 36 State #001

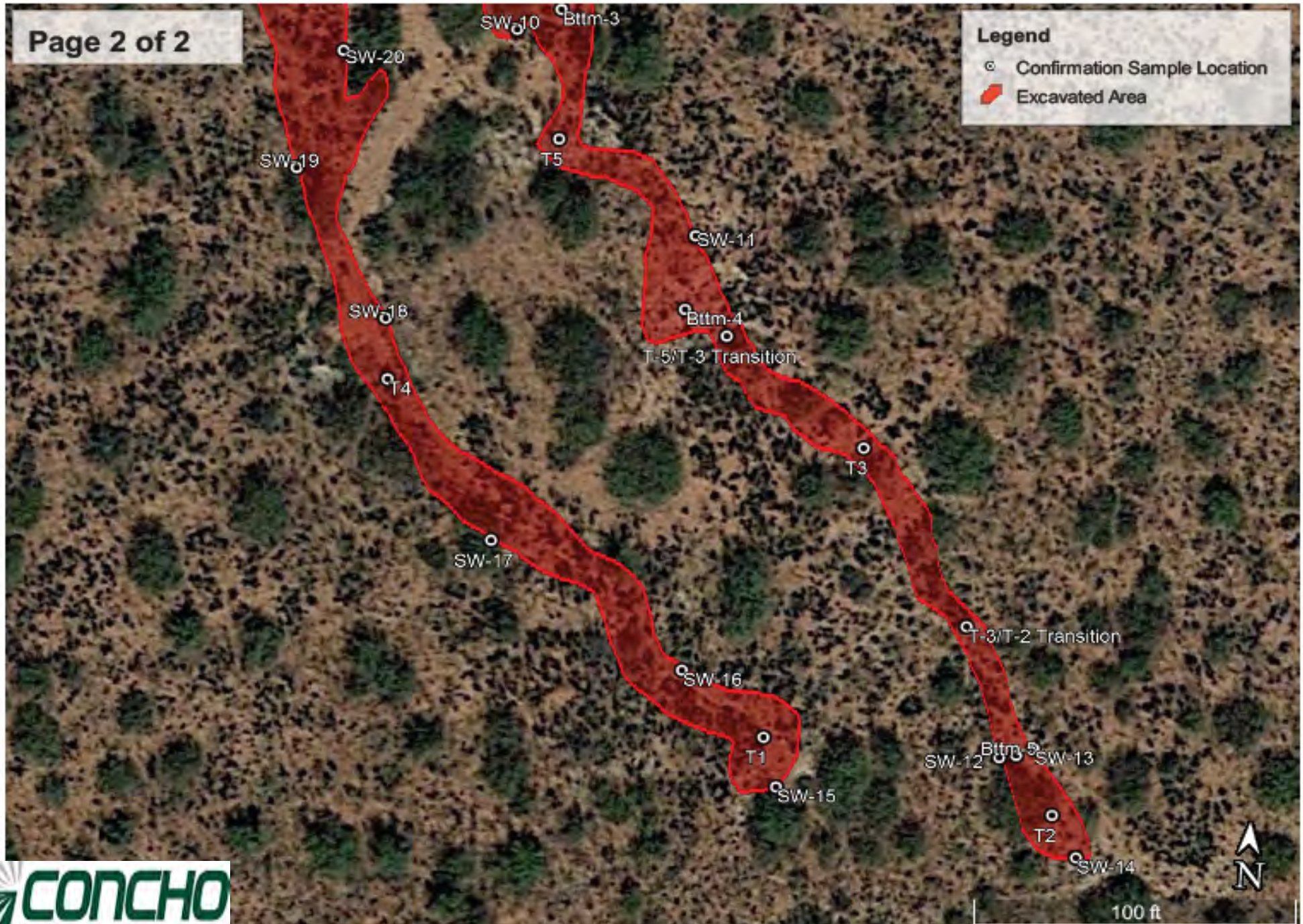
Page 1 of 2

Legend

- Confirmation Sample Location
- Excavated Area



Momentum 36 State #001



APPENDIX II



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 02296		CUB	LE	1	3	2	18	25S	35E	650398	3556305*	300	230	70
C 02297		CUB	LE	2	2	1	21	25S	35E	653436	3555140*	300	230	70
C 02298		CUB	LE	2	2	1	21	25S	35E	653436	3555140*	250	205	45
C 02388			LE			3	05	25S	35E	651467	3558832*	180	165	15
CP 00624		CP	LE	4	1	1	11	25S	35E	656206	3558197*	510		

Average Depth to Water: **207 feet**

Minimum Depth: **165 feet**

Maximum Depth: **230 feet**

Record Count: 5

PLSS Search:

Township: 25S **Range:** 35E

*UTM location was derived from PLSS - see Help

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

8/28/17 11:43 AM

WATER COLUMN/ AVERAGE DEPTH TO
WATER

APPENDIX III

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

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Momentum 36 State #001	Facility Type: Tank Battery

Surface Owner: State	Mineral Owner: State	API No. 30-025-37517
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LOCATION OF RELEASE

Unit Letter K	Section 36	Township 25S	Range 35E	Feet from the 1650	North/South Line South	Feet from the 2310	East/West Line West	County Lea
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Latitude 32.0841141 Longitude -103.3223724

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 2 bbls Oil & 128 bbls PW	Volume Recovered: 1.5 bbls Oil & 50 bbls PW
Source of Release: Pump	Date and Hour of Occurrence: June 9, 2017 10:00 am	Date and Hour of Discovery: June 9, 2017 10:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Yu - NMOCD / Ms. Groves - SLO	
By Whom? Dakota Neel	Date and Hour: June 9, 2017 10:57 am	
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 pumps turning on while the HOA was in the off position. The pressure increased and caused a 1/2-inch nipple blow out. The 1/2-inch nipple was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release was on location and in the adjacent pasture. A vacuum truck was dispatched to remove all freestanding fluids. 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	Approved by Environmental Specialist:	
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: rhaskell@concho.com	Conditions of Approval:	
Date: June 12, 2017 Phone: 432-683-7443	Attached ☐	

* Attach Additional Sheets If Necessary

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.
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Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill	
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443	
Facility Name: Momentum 36 State #001	Facility Type: Tank Battery	
Surface Owner: State	Mineral Owner: State	API No. 30-025-37517

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	36	25S	35E	1650	South	2310	West	Lea

Latitude 32.0841141 Longitude -103.3223724

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 2 bbls Oil & 128 bbls PW	Volume Recovered: 1.5 bbls Oil & 50 bbls PW
Source of Release: Pump	Date and Hour of Occurrence: June 9, 2017 10:00 am	Date and Hour of Discovery: June 9, 2017 10:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Yu - NMOCD / Ms. Groves - SLO	
By Whom? Dakota Neel	Date and Hour: June 9, 2017 10:57 am	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

APPROVED

By Olivia Yu at 9:57 am, Jun 15, 2018

Describe Cause of Problem and Remedial Action Taken.*

The release was due to pumps turning on while the HOA was in the off position. The pressure increased and caused a 1/2-inch nipple blow out. The 1/2-inch nipple was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release was on location and in the adjacent pasture. A vacuum truck was dispatched to remove all freestanding fluids. A site assessment and soil sampling was conducted within the impacted area. Upon receipt of results from the soil sampling event a remediation work plan was submitted to and subsequently approved by NMOCD and NMSLO. Remediation of the impacted area was carried out in accordance with the approved work plan and stipulations.

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>Sheldon Hitchcock</i>	OIL CONSERVATION DIVISION	
Printed Name: Sheldon L. Hitchcock	Approved by Environmental Specialist: <i>[Signature]</i>	
Title: HSE Coordinator	Approval Date: 6/15/2018	Expiration Date: xx/xx/xxxx
E-mail Address: slhitchcock@concho.com	Conditions of Approval:	Attached ☐
Date: June 8, 2018 Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

1RP-4726

APPENDIX V

SITE INFORMATION

Report Type: Work Plan 1RP-4726

General Site Information:

Site:	Momentum 36 State #1					
Company:	COG Operating LLC					
Section, Township and Range	Unit K	Sec. 36	T 25S	R 35E		
Lease Number:	API No. 30-025-37517					
County:	Lea County					
GPS:	32.0841141° N			103.3223724° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of NM 128 and US 18 in Jal, NM, travel west on NM 128 for approximately 11 miles, turn south onto lease road for approximately 3.9 mi to T in road, turn east for 0.50 mi, turn south for 0.80 mi, turn east onto lease road for approximately 2.20 miles to location.					

Release Data:

Date Released:	6/9/2017
Type Release:	Oil and Produced Water
Source of Contamination:	Pump
Fluid Released:	2 bbls oil & 128 bbls water
Fluids Recovered:	1.5 bbls oil & 50 bbls water

Official Communication:

Name:	Robert McNeil		Ike Tavaréz
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavaréz@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	225'
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

February 5, 2018

Ms. Olivia Yu
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Revised Work Plan for the COG Operating LLC., Momentum 36 State #1, Unit K, Section 36, Township 25 South, Range 35 East, Lea County, New Mexico. 1RP-4726.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to prepare a work plan for a release that occurred at the Momentum 36 State #1, Unit K, Section 36, Township 25 South, Range 35 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.0841141°, W 103.3223724°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release occurred on June 9, 2017, and released approximately two (2) barrels of oil and one hundred and twenty eight (128) barrels of produced water due to pumps causing a ½ inch nipple to blow out. A vacuum truck was used to remove the standing fluids and recovered 1.5 barrels of oil and 50 barrels of produced water. The release occurred on the pad and migrated into the pasture, impacting areas measuring approximately 150' x 170' and 25' x 640'. The initial C-141 form is included in Appendix A.

Groundwater

No water wells were listed within Section 36 on the New Mexico Office of the State Engineer's database. The nearest well is located in Section 6, Township 26 South, Range 36 East, with a reported depth to water of approximately 280' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is approximately 225' below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene,

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On July 12, 2017, COG personnel were onsite to evaluate and sample the release area. A total of eight (8) sample trenches (T-1 through T-8) were installed in the release area with total depths ranging from 6.0' to 12.0' below surface. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The sampling results are summarized in Table 1. The trench locations are shown on Figure 3.

Benzene and Total BTEX

Referring to Table 1, all of the samples showed benzene concentrations below the laboratory reporting limit. Additionally, none of the samples analyzed showed total BTEX concentrations above the RRAL, with concentrations ranging from below the laboratory reporting limit to 43.5 mg/kg.

TPH

The areas of trenches (T-3, T-6, and T-8) did not show any TPH concentrations above the 5,000 mg/kg RRAL, with concentrations of 372 mg/kg, 1,550 mg/kg, and 2,220 mg/kg at surface, respectively. The concentrations declined with depth and showed bottom trench concentrations of <15.0 mg/kg at 6.0' (T-3), <15.0 mg/kg at 8.0' (T-6), and 69.3 mg/kg at 8.0' (T-8).

The areas of trenches (T-1, T-4, and T-7) did show elevated TPH concentrations above the RRAL at surface of 6,940 mg/kg, 23,300 mg/kg, and 11,500 mg/kg, respectively. The impact in these areas then declined with depth at 1.0' below surface to 1,110 mg/kg (T-1), 111 mg/kg (T-4), and 389 mg/kg (T-7). In addition, the areas of trenches (T-1, T-4, and T-7) showed bottom trench concentrations that were below the laboratory reporting limit at 8.0', 6.0', and 12.0' below surface, respectively.

The samples collected in the areas of trenches (T-2 and T-5) showed TPH concentrations above the RRAL from surface to 1.0' below surface, before declining with depth. These areas showed TPH highs of 19,700 mg/kg and 22,100 mg/kg at surface, respectively. The TPH concentrations declined with depth to below the RRAL at 2.0' below surface and showed bottom trench concentrations of 381 mg/kg at 9.0' (T-2) and 132 mg/kg at 8.0' (T-5).



Chlorides

None of the samples collected at trenches (T-1, T-2, T-3, T-4, and T-5) showed significant chlorides, with concentrations ranging between <3.97 mg/kg to 334 mg/kg. However, the areas of trenches (T-6, T-7 and T-8) did show chloride impact to the shallow soils, with chloride highs of 735 mg/kg at surface, 1,170 mg/kg at surface, and 2,360 mg/kg at 1.0' below surface, respectively. The chloride concentrations declined with depth to 81.7 mg/kg at 1.0 (T-6), 337 mg/kg at 1.0' (T-7), and 229 mg/kg at 2.0' (T-8).

Work Plan

Based on the laboratory results, COG proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. The areas of trenches (T-1, T-4, and T-7) will be superficially scraped and the areas of trenches (T-2, T-5, and T-8) will be excavated to 1.0' below surface in order to remove the TPH and chloride impacted soils. Once the areas are excavated to the appropriate depths, the areas will be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safety concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

Revegetation Plan

The backfilled areas will be seeded in June 2018 in order to coincide with the rainy season in Southeastern New Mexico to aid in revegetation. Based on the soils at the site, the NMSLO Shallow (SH) Sites Seed Mixture will be used for seeding and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.

Site inspections will be performed to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The NMSLO seed mixture details and corresponding pounds pure live seed per acre are included in Appendix C.



TETRA TECH

Reporting

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

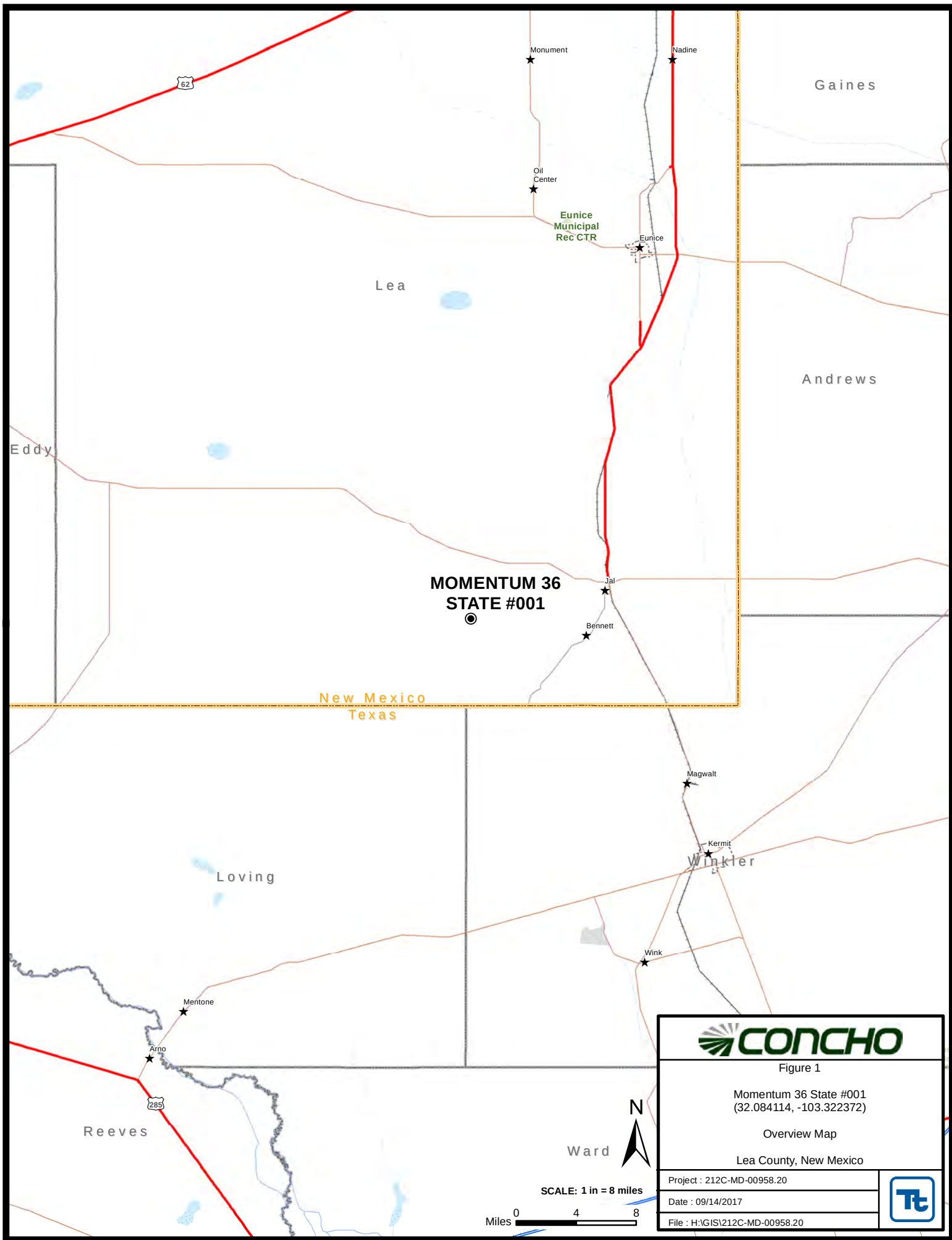
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Geologist

Ike Tavaréz,
Senior Project Manager, P.G.

cc: Robert McNeill – COG
Dakota Neel – COG
Rebecca Haskell – COG
Mark Naranjo - SLO

Figures



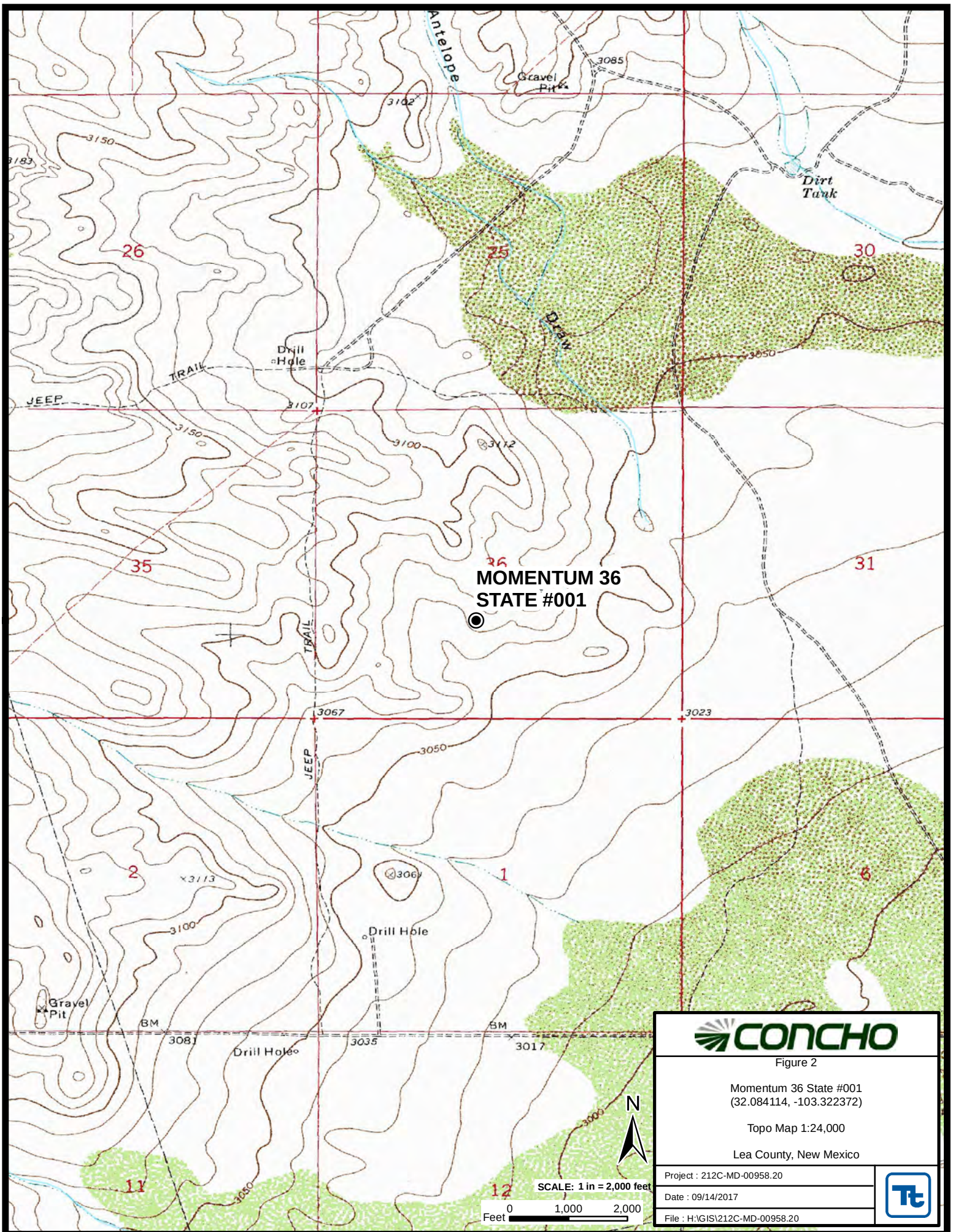


Figure 2

Momentum 36 State #001
(32.084114, -103.322372)

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00958.20

Date : 09/14/2017

File : H:\GIS\212C-MD-00958.20



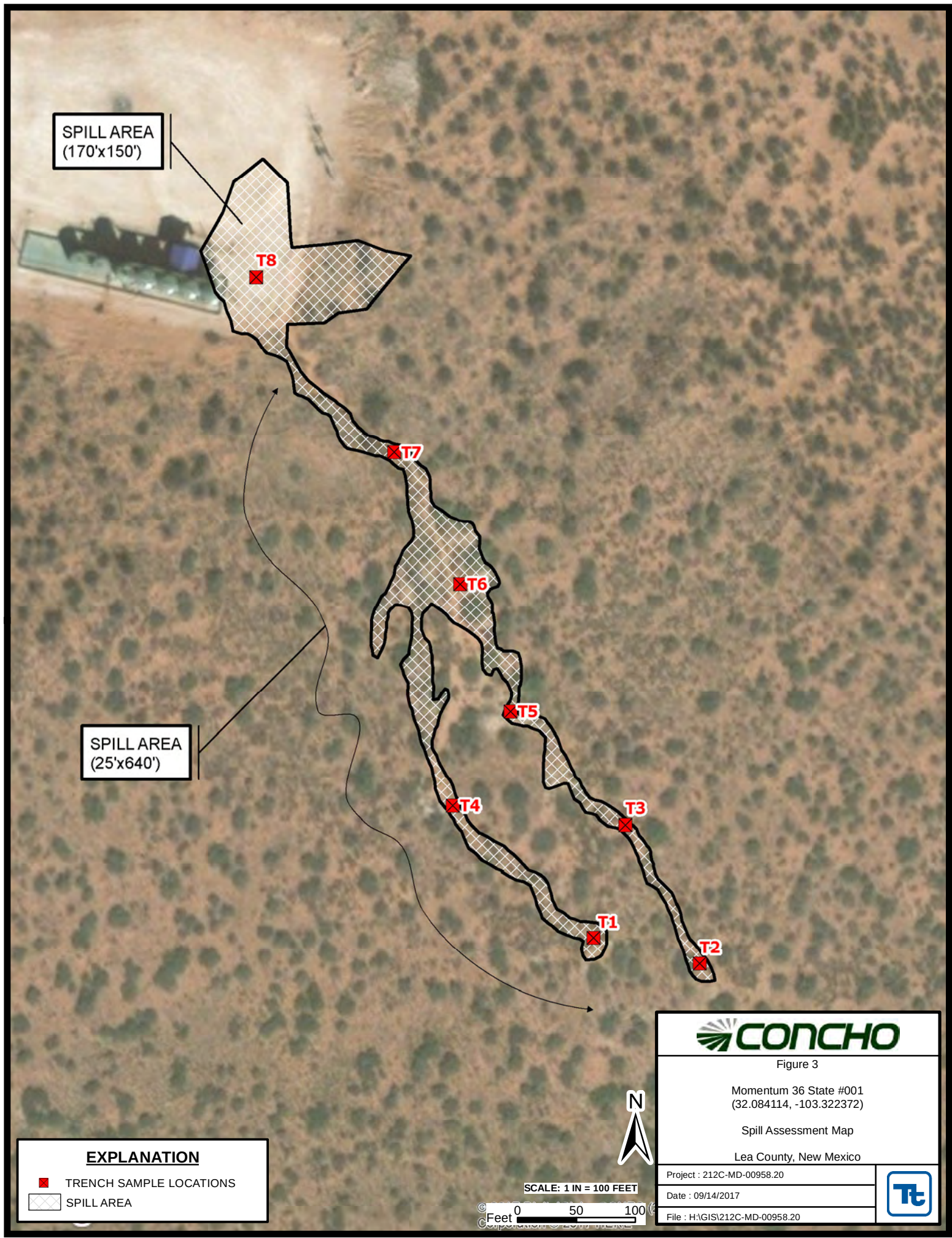


Figure 3

Momentum 36 State #001
(32.084114, -103.322372)

Spill Assessment Map

Lea County, New Mexico

Project : 212C-MD-00958.20

Date : 09/14/2017

File : H:\GIS\212C-MD-00958.20

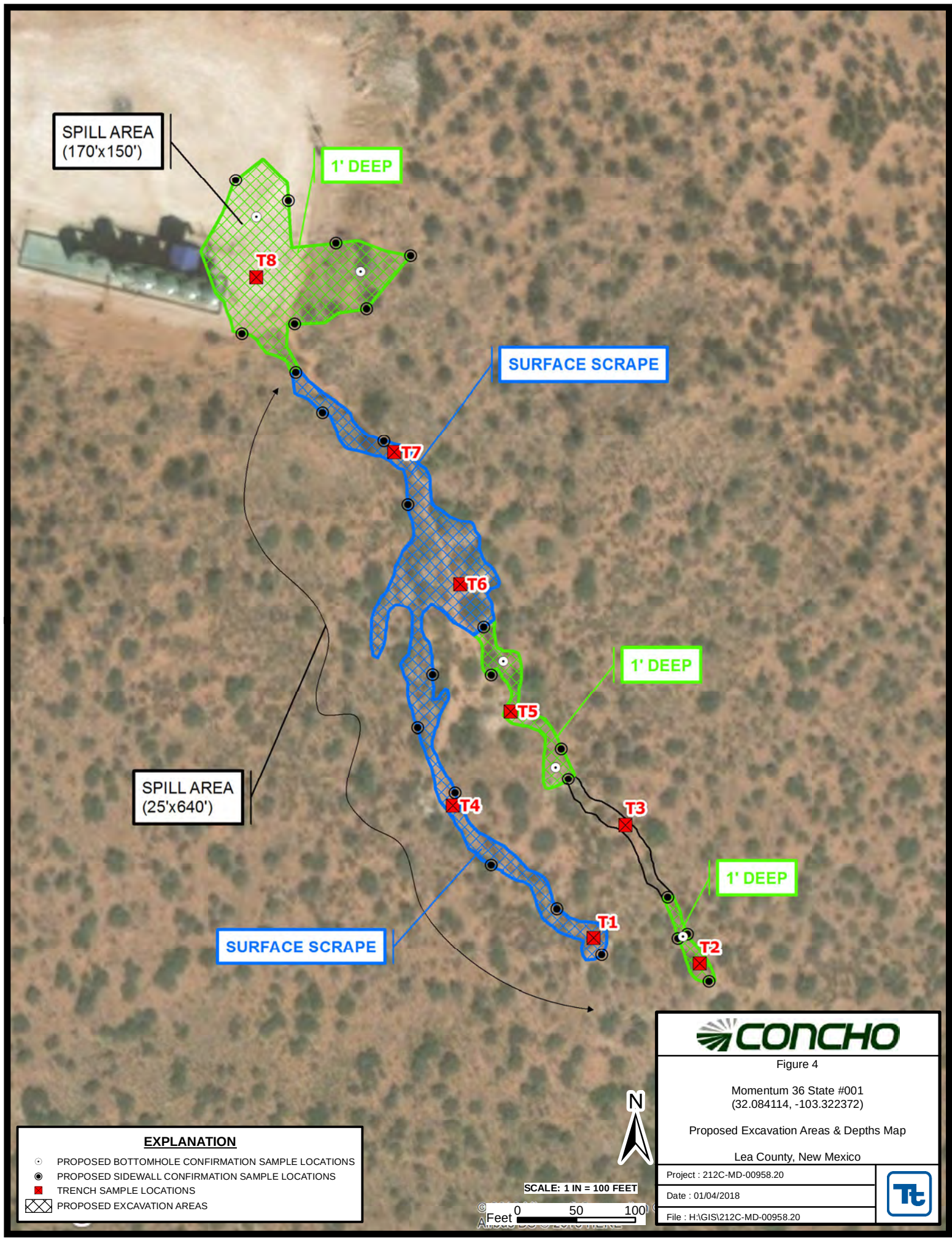


EXPLANATION

-  TRENCH SAMPLE LOCATIONS
-  SPILL AREA

SCALE: 1 IN = 100 FEET

Feet 0 50 100



SPILL AREA
(170'x150')

1' DEEP

T8

SURFACE SCRAPE

T7

T6

1' DEEP

T5

SPILL AREA
(25'x640')

T4

T3

1' DEEP

T1

T2

SURFACE SCRAPE

EXPLANATION

- PROPOSED BOTTOMHOLE CONFIRMATION SAMPLE LOCATIONS
- PROPOSED SIDEWALL CONFIRMATION SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- ▨ PROPOSED EXCAVATION AREAS



SCALE: 1 IN = 100 FEET

0 50 100
Feet



Figure 4

Momentum 36 State #001
(32.084114, -103.322372)

Proposed Excavation Areas & Depths Map

Lea County, New Mexico

Project : 212C-MD-00958.20

Date : 01/04/2018

File : H:\GIS\212C-MD-00958.20



Tables

Table 1
COG Operating LLC.
Momentum 36 State #1
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	C6-C10	C10-C28	C28-C35	Total						
T-1	7/12/2017	Surface	X		600	5250	1090	6940	<0.00201	0.00723	0.0572	0.485	0.549	74.7
	"	1	X		243	775	90.5	1110	<0.00202	0.0177	0.267	1.12	1.40	24.2
	"	2	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<3.97
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.67
	"	4	X		<14.9	<14.9	<14.9	<14.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.83
	"	6	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.96
	"	8	X		<14.9	<14.9	<14.9	<14.9	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<4.84
T-2	7/12/2017	Surface	X		2230	14500	2960	19700	<0.00199	0.0333	0.0801	0.272	0.385	334
	"	1	X		2050	8170	1400	11600	<0.00200	0.290	3.02	10.8	14.2	<4.65
	"	2	X		297	1110	174	1580	<0.00202	0.0465	0.180	0.779	1.01	24.9
	"	3	X		542	1820	367	2730	0.00913	1.35	2.82	12.0	16.1	7.85
	"	4	X		103	315	18.4	436	<0.00201	0.0632	0.123	0.470	0.656	<4.84
	"	6	X		-	-	-	-	-	-	-	-	-	<4.76
	"	9	X		31.8	323	25.9	381	<0.00199	<0.00199	<0.00199	0.00257	0.00257	<4.65
T-3	7/12/2017	Surface	X		41.1	295	36.0	372	<0.00200	<0.00200	<0.00200	0.00950	0.00950	19.4
	"	1	X		<15.0	40.4	<15.0	40.4	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<4.76
	"	2	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.98
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.86
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<4.83
	"	6	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<4.78
T-4	7/12/2017	Surface	X		4310	16000	3020	23300	<0.00199	0.133	0.222	43.1	43.5	133
	"	1	X		22.8	88.5	<15.0	111	<0.00199	<0.00199	0.0151	0.148	0.163	6.82
	"	2	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.97
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	4.92
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.91
	"	6	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	7.59
T-5	7/12/2017	Surface	X		2840	16100	3180	22100	0.00266	0.313	0.361	28.8	29.5	278
	"	1	X		1240	4820	723	6780	<0.00200	0.295	7.02	25.5	32.8	7.44
	"	2	X		30.0	296	<15.0	326	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	34.8
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.84
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	10.5
	"	6	X		-	-	-	-	-	-	-	-	-	12.3
	"	8	X		<15.0	132	<15.0	132	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	118
T-6	7/12/2017	Surface	X		274	1120	153	1550	<0.00199	<0.00199	0.0126	0.326	0.339	735
	"	1	X		<15.0	18.4	<15.0	18.4	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	81.7
	"	2	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.83
	"	3	X		21.2	138	<15.0	159	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	61.9
	"	4	X		<14.9	26.7	<14.9	26.7	<0.00202	<0.00202	<0.00202	0.00421	0.00421	13.1
	"	6	X		-	-	-	-	-	-	-	-	-	10.6
	"	8	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	31.2

Table 1
COG Operating LLC.
Momentum 36 State #1
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	C6-C10	C10-C28	C28-C35	Total						
T-7	7/12/2017	Surface	X		2200	8080	1190	11500	<0.00199	<0.00199	0.141	10.2	10.3	1170
	"	1	X		72.8	316	<15.0	389	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	337
	"	2	X		<15.0	25.9	<15.0	25.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	150
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	0.0368	0.0368	23.2
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	0.00640	0.00640	106
	"	6	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	152
	"	12	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	275
T-8	7/12/2017	Surface	X		328	1530	359	2220	<0.00201	0.00768	0.0734	0.461	0.542	1980
	"	1	X		19.0	353	45.3	417	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	2360
	"	2	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	229
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	19.4
	"	4	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	7.20
	"	6	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	20.3
	"	8	X		<15.0	69.3	<15.0	69.3	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	45.0

 Proposed Excavation Depths

(-) Not Analyzed

Appendix A

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

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Momentum 36 State #001	Facility Type: Tank Battery

Surface Owner: State	Mineral Owner: State	API No. 30-025-37517
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LOCATION OF RELEASE

Unit Letter K	Section 36	Township 25S	Range 35E	Feet from the 1650	North/South Line South	Feet from the 2310	East/West Line West	County Lea
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Latitude 32.0841141 Longitude -103.3223724

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 2 bbls Oil & 128 bbls PW	Volume Recovered: 1.5 bbls Oil & 50 bbls PW
Source of Release: Pump	Date and Hour of Occurrence: June 9, 2017 10:00 am	Date and Hour of Discovery: June 9, 2017 10:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Yu - NMOCD / Ms. Groves - SLO	
By Whom? Dakota Neel	Date and Hour: June 9, 2017 10:57 am	
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 pumps turning on while the HOA was in the off position. The pressure increased and caused a 1/2-inch nipple blow out. The 1/2-inch nipple was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release was on location and in the adjacent pasture. A vacuum truck was dispatched to remove all freestanding fluids. 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	Approved by Environmental Specialist:	
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: rhaskell@concho.com	Conditions of Approval:	
Date: June 12, 2017 Phone: 432-683-7443	Attached ☐	

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Momentum 36 State #1
Lea County, New Mexico

24 South			34 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			35 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			36 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			34 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			35 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South			36 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South			34 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South			35 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South			36 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 02296		CUB	LE	1	3	2	18	25S	35E	650398	3556305*	300	230	70
C 02297		CUB	LE	2	2	1	21	25S	35E	653436	3555140*	300	230	70
C 02298		CUB	LE	2	2	1	21	25S	35E	653436	3555140*	250	205	45
C 02388			LE			3	05	25S	35E	651467	3558832*	180	165	15
CP 00624		CP	LE	4	1	1	11	25S	35E	656206	3558197*	510		

Average Depth to Water: **207 feet**

Minimum Depth: **165 feet**

Maximum Depth: **230 feet**

Record Count: 5

PLSS Search:

Township: 25S **Range:** 35E

*UTM location was derived from PLSS - see Help

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

8/28/17 11:43 AM

WATER COLUMN/ AVERAGE DEPTH TO
WATER

Appendix C

NMSLO Seed Mix

Shallow (SH)

SHALLOW (SH) SITES SEED MIXTURE:

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
Grasses:			
Sideoats grama	Vaughn, El Reno	4.0	F
Blue grama	Lovington, Hachita	3.0	D
Little bluestem	Pastura, Cimmaron	1.5	F
Green sprangletop	VNS, Southern	1.0	D
Plains bristlegrass	VNS, Southern	1.0	D
Forbs:			
Firewheel (<i>Gaillardia</i>)	VNS, Southern	1.0	D
Shrubs:			
Fourwing saltbush	Marana, Santa Rita	1.0	D
Common winterfat	VNS, Southern	0.5	F
Total PLS/acre		13.0	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box
VNS = Variety Not Stated, PLS = Pure Live Seed

- Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).
- VNS, Southern – Seed should be from a southern latitude collection of this species.
- Double seed application rate for broadcast or hydroseeding.
- If one species is not available, contact the SLO for an approved substitute; alternatively the SLO may require other species proportionately increased.
- Additional information on these seed species can be found on the USDA Plants Database website at <http://plants.usda.gov>.



Lea County, New Mexico

PU—Pyote and maljamar fine sands

Map Unit Setting

National map unit symbol: dmqq

Elevation: 3,000 to 3,900 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 60 to 62 degrees F

Frost-free period: 190 to 205 days

Farmland classification: Not prime farmland

Map Unit Composition

Pyote and similar soils: 45 percent

Maljamar and similar soils: 45 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pyote

Setting

Landform: Plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 30 inches: fine sand

Bt - 30 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High
(2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Gypsum, maximum in profile: 1 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Description of Maljamar

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 24 inches: fine sand
Bt - 24 to 50 inches: sandy clay loam
Bkm - 50 to 60 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: Sandhills (R042XC022NM)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 14, Sep 10, 2017

Appendix D



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	557797-001	557797-002	557797-003	557797-004	557797-005	557797-006
	<i>Field Id:</i>	T1-Surf	T1-1'	T1-2'	T1-3'	T1-4'	T1-6'
	<i>Depth:</i>		1- ft	2- ft	3- ft	4- ft	6- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jul-12-17 09:30	Jul-12-17 09:30	Jul-12-17 09:30	Jul-12-17 09:30	Jul-12-17 09:30	Jul-12-17 09:30
BTEX by EPA 8021B	<i>Extracted:</i>	Jul-21-17 07:30	Jul-21-17 07:30	Jul-21-17 07:30	Jul-21-17 07:30	Jul-21-17 07:30	Jul-21-17 07:30
	<i>Analyzed:</i>	Jul-21-17 13:06	Jul-21-17 12:47	Jul-21-17 10:55	Jul-21-17 11:14	Jul-21-17 11:33	Jul-21-17 11:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Toluene		0.00723 0.00201	0.0177 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Ethylbenzene		0.0572 0.00201	0.267 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
m,p-Xylenes		0.301 0.00402	0.791 0.00403	<0.00399 0.00399	<0.00401 0.00401	<0.00398 0.00398	<0.00399 0.00399
o-Xylene		0.184 0.00201	0.329 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total Xylenes		0.485 0.00201	1.12 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Total BTEX		0.549 0.00201	1.40 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00
	<i>Analyzed:</i>	Jul-21-17 16:16	Jul-21-17 16:51	Jul-21-17 16:58	Jul-21-17 17:06	Jul-21-17 17:14	Jul-21-17 17:37
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		74.7 4.82	24.2 4.82	<3.97 3.97	<4.67 4.67	<4.83 4.83	<4.96 4.96
TPH By SW8015 Mod	<i>Extracted:</i>	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00
	<i>Analyzed:</i>	Jul-18-17 17:13	Jul-18-17 17:36	Jul-18-17 17:58	Jul-18-17 18:21	Jul-18-17 19:30	Jul-18-17 19:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		600 74.9	243 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Diesel Range Organics (DRO)		5250 74.9	775 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Oil Range Hydrocarbons (ORO)		1090 74.9	90.5 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Total TPH		6940 74.9	1110 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	557797-007	557797-008	557797-009	557797-010	557797-011	557797-012
	Field Id:	T1-8'	T2-Surf'	T2-1'	T2-2'	T2-3'	T2-4'
	Depth:	8- ft		1- ft	2- ft	3- ft	4- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jul-12-17 09:30	Jul-12-17 09:30	Jul-12-17 09:30	Jul-12-17 09:30	Jul-12-17 10:00	Jul-12-17 10:00
BTEX by EPA 8021B	Extracted:	Jul-21-17 07:30	Jul-21-17 07:30	Jul-25-17 09:00	Jul-21-17 07:30	Jul-21-17 14:00	Jul-21-17 07:30
	Analyzed:	Jul-21-17 12:11	Jul-21-17 15:40	Jul-25-17 12:28	Jul-21-17 15:20	Jul-22-17 02:13	Jul-21-17 15:02
	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	<0.00200 0.00200	<0.00202 0.00202	0.00913 0.00202	<0.00201 0.00201
Toluene		<0.00201 0.00201	0.0333 0.00199	0.290 0.00200	0.0465 0.00202	1.35 D 0.0497	0.0632 0.00201
Ethylbenzene		<0.00201 0.00201	0.0801 0.00199	3.02 D 0.0398	0.180 0.00202	2.82 D 0.0497	0.123 0.00201
m,p-Xylenes		<0.00402 0.00402	0.103 0.00398	6.96 D 0.0797	0.496 0.00404	8.07 D 0.0994	0.264 0.00402
o-Xylene		<0.00201 0.00201	0.169 0.00199	3.88 D 0.0398	0.283 0.00202	3.90 D 0.0497	0.206 0.00201
Total Xylenes		<0.00201 0.00201	0.272 0.00199	10.8 0.0398	0.779 0.00202	12.0 0.0497	0.470 0.00201
Total BTEX		<0.00201 0.00201	0.385 0.00199	14.2 0.00200	1.01 0.00202	16.1 0.00202	0.656 0.00201
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00
	Analyzed:	Jul-21-17 17:44	Jul-21-17 17:52	Jul-21-17 18:00	Jul-21-17 18:08	Jul-21-17 18:15	Jul-21-17 18:38
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.84 4.84	334 4.89	<4.65 4.65	24.9 4.75	7.85 4.85	<4.84 4.84
TPH By SW8015 Mod	Extracted:	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00
	Analyzed:	Jul-18-17 20:14	Jul-18-17 20:36	Jul-18-17 20:57	Jul-18-17 21:19	Jul-18-17 22:21	Jul-18-17 22:41
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	2230 74.9	2050 74.9	297 15.0	542 15.0	103 15.0
Diesel Range Organics (DRO)		<14.9 14.9	14500 74.9	8170 74.9	1110 15.0	1820 15.0	315 15.0
Oil Range Hydrocarbons (ORO)		<14.9 14.9	2960 74.9	1400 74.9	174 15.0	367 15.0	18.4 15.0
Total TPH		<14.9 14.9	19700 74.9	11600 74.9	1580 15.0	2730 15.0	436 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	557797-013	557797-014	557797-015	557797-016	557797-017	557797-018
	Field Id:	T2-6'	T2-9'	T3-Surf	T3-1'	T3-2'	T3-3'
	Depth:	6- ft	9- ft		1- ft	2- ft	3- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jul-12-17 10:00	Jul-12-17 10:00	Jul-12-17 10:00	Jul-12-17 10:00	Jul-12-17 10:00	Jul-12-17 10:00
BTEX by EPA 8021B	Extracted:		Jul-21-17 07:30	Jul-21-17 07:30	Jul-21-17 07:30	Jul-20-17 13:30	Jul-20-17 13:30
	Analyzed:		Jul-21-17 14:43	Jul-21-17 14:22	Jul-21-17 14:03	Jul-21-17 02:44	Jul-21-17 03:02
	Units/RL:		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200
	Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene			<0.00199 0.00199	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes			<0.00398 0.00398	0.00519 0.00399	<0.00396 0.00396	<0.00401 0.00401	<0.00399 0.00399
o-Xylene			0.00257 0.00199	0.00431 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes			0.00257 0.00199	0.00950 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200
Total BTEX			0.00257 0.00199	0.00950 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:00
	Analyzed:	Jul-21-17 18:46	Jul-21-17 19:09	Jul-21-17 19:17	Jul-21-17 19:24	Jul-21-17 19:32	Jul-21-17 19:40
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Chloride	<4.76 4.76	<4.65 4.65	19.4 4.95	<4.76 4.76	<4.98 4.98	<4.86 4.86
TPH By SW8015 Mod	Extracted:		Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00
	Analyzed:		Jul-18-17 23:00	Jul-18-17 23:20	Jul-18-17 23:39	Jul-18-17 23:59	Jul-19-17 00:20
	Units/RL:		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Gasoline Range Hydrocarbons (GRO)		31.8 15.0	41.1 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
	Diesel Range Organics (DRO)		323 15.0	295 15.0	40.4 15.0	<14.9 14.9	<15.0 15.0
Oil Range Hydrocarbons (ORO)			25.9 15.0	36.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0
Total TPH			381 15.0	372 15.0	40.4 15.0	<14.9 14.9	<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	557797-019	557797-020	557797-021	557797-022	557797-023	557797-024
	Field Id:	T3-4'	T3-6'	T4-Surf	T4-1'	T4-2'	T4-3'
	Depth:	4- ft	6- ft		1- ft	2- ft	3- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jul-12-17 10:00	Jul-12-17 10:00	Jul-12-17 10:30	Jul-12-17 10:30	Jul-12-17 10:30	Jul-12-17 10:30
BTEX by EPA 8021B	Extracted:	Jul-20-17 13:30	Jul-20-17 13:30	Jul-25-17 09:00	Jul-20-17 13:30	Jul-25-17 09:00	Jul-21-17 07:30
	Analyzed:	Jul-21-17 03:21	Jul-21-17 03:40	Jul-25-17 11:27	Jul-21-17 03:59	Jul-25-17 12:53	Jul-21-17 10:17
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Toluene		<0.00198 0.00198	<0.00202 0.00202	0.133 0.00199	<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Ethylbenzene		<0.00198 0.00198	<0.00202 0.00202	0.222 0.00199	0.0151 0.00199	<0.00199 0.00199	<0.00199 0.00199
m,p-Xylenes		<0.00397 0.00397	<0.00403 0.00403	42.7 D 0.402	0.0876 0.00398	<0.00398 0.00398	<0.00398 0.00398
o-Xylene		<0.00198 0.00198	<0.00202 0.00202	0.396 0.00199	0.0606 0.00199	<0.00199 0.00199	<0.00199 0.00199
Total Xylenes		<0.00198 0.00198	<0.00202 0.00202	43.1 0.00199	0.148 0.00199	<0.00199 0.00199	<0.00199 0.00199
Total BTEX		<0.00198 0.00198	<0.00202 0.00202	43.5 0.00199	0.163 0.00199	<0.00199 0.00199	<0.00199 0.00199
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-21-17 15:00	Jul-21-17 15:00	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40
	Analyzed:	Jul-21-17 19:47	Jul-21-17 19:55	Jul-21-17 20:41	Jul-21-17 21:04	Jul-21-17 21:12	Jul-21-17 21:20
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.83 4.83	<4.78 4.78	133 4.87	6.82 4.97	<4.97 4.97	4.92 4.71
TPH By SW8015 Mod	Extracted:	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00
	Analyzed:	Jul-19-17 00:40	Jul-19-17 01:00	Jul-19-17 01:20	Jul-19-17 03:04	Jul-19-17 04:04	Jul-19-17 04:25
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	4310 74.9	22.8 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	16000 74.9	88.5 15.0	<15.0 15.0	<15.0 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	3020 74.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	23300 74.9	111 15.0	<15.0 15.0	<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	557797-025	557797-026	557797-027	557797-028	557797-029	557797-030
	Field Id:	T4-4'	T4-6'	T5-Surf	T5-1'	T5-2'	T5-3'
	Depth:	4- ft	6- ft		1- ft	2- ft	3- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jul-12-17 10:30	Jul-12-17 10:30	Jul-12-17 10:30	Jul-12-17 10:30	Jul-12-17 10:30	Jul-12-17 10:30
BTEX by EPA 8021B	Extracted:	Jul-24-17 08:00	Jul-21-17 15:30	Jul-21-17 15:30	Jul-21-17 15:30	Jul-21-17 15:30	Jul-21-17 15:30
	Analyzed:	Jul-24-17 12:42	Jul-22-17 05:19	Jul-22-17 10:22	Jul-22-17 11:38	Jul-22-17 10:03	Jul-22-17 09:44
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	0.00266 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Toluene		<0.00200 0.00200	<0.00200 0.00200	0.313 0.00199	0.295 0.00200	<0.00201 0.00201	<0.00199 0.00199
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	0.361 0.00199	7.02 D 0.199	<0.00201 0.00201	<0.00199 0.00199
m,p-Xylenes		<0.00399 0.00399	<0.00401 0.00401	18.8 D 0.100	16.9 D 0.398	<0.00402 0.00402	<0.00398 0.00398
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	9.99 D 0.0502	8.58 D 0.199	<0.00201 0.00201	<0.00199 0.00199
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	28.8 0.0502	25.5 0.199	<0.00201 0.00201	<0.00199 0.00199
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	29.5 0.00199	32.8 0.00200	<0.00201 0.00201	<0.00199 0.00199
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40
	Analyzed:	Jul-21-17 21:27	Jul-21-17 21:50	Jul-21-17 21:58	Jul-21-17 22:06	Jul-21-17 22:13	Jul-21-17 22:21
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.91 4.91	7.59 4.92	278 4.88	7.44 4.89	34.8 4.96	<4.84 4.84
TPH By SW8015 Mod	Extracted:	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00
	Analyzed:	Jul-19-17 04:46	Jul-19-17 05:07	Jul-19-17 05:28	Jul-19-17 05:50	Jul-19-17 06:11	Jul-19-17 06:32
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<14.9 14.9	2840 74.8	1240 74.9	30.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	16100 74.8	4820 74.9	296 15.0	<15.0 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<14.9 14.9	3180 74.8	723 74.9	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<14.9 14.9	22100 74.8	6780 74.9	326 15.0	<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	557797-031	557797-032	557797-033	557797-034	557797-035	557797-036
	<i>Field Id:</i>	T5-4'	T5-6'	T5-8'	T6-Surf	T6-1'	T6-2'
	<i>Depth:</i>	4- ft	6- ft	8- ft		1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jul-12-17 11:00	Jul-12-17 11:00	Jul-12-17 11:00	Jul-12-17 11:00	Jul-12-17 11:00	Jul-12-17 11:00
BTEX by EPA 8021B	<i>Extracted:</i>	Jul-21-17 15:30		Jul-21-17 15:30	Jul-21-17 15:30	Jul-21-17 15:30	Jul-21-17 15:30
	<i>Analyzed:</i>	Jul-22-17 09:25		Jul-22-17 15:03	Jul-22-17 15:22	Jul-22-17 13:29	Jul-22-17 13:12
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00200 0.00200		<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200		<0.00200 0.00200	0.0126 0.00199	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00400 0.00400		<0.00401 0.00401	0.203 0.00398	<0.00401 0.00401	<0.00399 0.00399
o-Xylene		<0.00200 0.00200		<0.00200 0.00200	0.123 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200		<0.00200 0.00200	0.326 0.00199	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00200 0.00200		<0.00200 0.00200	0.339 0.00199	<0.00200 0.00200	<0.00200 0.00200
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40
	<i>Analyzed:</i>	Jul-21-17 22:29	Jul-21-17 22:52	Jul-21-17 22:59	Jul-21-17 23:22	Jul-21-17 23:30	Jul-21-17 23:38
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		10.5 4.80	12.3 4.96	118 4.75	735 5.00	81.7 4.88	<4.83 4.83
TPH By SW8015 Mod	<i>Extracted:</i>	Jul-18-17 15:00		Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00
	<i>Analyzed:</i>	Jul-19-17 06:53		Jul-19-17 07:55	Jul-19-17 08:16	Jul-19-17 08:37	Jul-19-17 08:58
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0		<15.0 15.0	274 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0		132 15.0	1120 15.0	18.4 15.0	<15.0 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0		<15.0 15.0	153 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0		132 15.0	1550 15.0	18.4 15.0	<15.0 15.0

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

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

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	557797-037	557797-038	557797-039	557797-040	557797-041	557797-042
	Field Id:	T6-3'	T6-4'	T6-6'	T6-8'	T7-Surf	T7-1'
	Depth:	3- ft	4- ft	6- ft	8- ft		1- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jul-12-17 11:00	Jul-12-17 11:00	Jul-12-17 11:00	Jul-12-17 11:00	Jul-12-17 11:30	Jul-12-17 11:30
BTEX by EPA 8021B	Extracted:	Jul-21-17 15:30	Jul-21-17 15:30		Jul-21-17 15:30	Jul-21-17 15:30	Jul-24-17 08:00
	Analyzed:	Jul-22-17 12:53	Jul-22-17 12:34		Jul-22-17 11:19	Jul-22-17 13:48	Jul-24-17 12:23
	Units/RL:	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00202 0.00202		<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Toluene		<0.00201 0.00201	<0.00202 0.00202		<0.00199 0.00199	<0.00199 0.00199	<0.00199 0.00199
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202		<0.00199 0.00199	0.141 0.00199	<0.00199 0.00199
m,p-Xylenes		<0.00402 0.00402	0.00421 0.00404		<0.00398 0.00398	8.45 D 0.0806	<0.00398 0.00398
o-Xylene		<0.00201 0.00201	<0.00202 0.00202		<0.00199 0.00199	1.73 D 0.0403	<0.00199 0.00199
Total Xylenes		<0.00201 0.00201	0.00421 0.00202		<0.00199 0.00199	10.2 0.0403	<0.00199 0.00199
Total BTEX		<0.00201 0.00201	0.00421 0.00202		<0.00199 0.00199	10.3 0.00199	<0.00199 0.00199
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 15:40	Jul-21-17 16:30	Jul-21-17 16:30
	Analyzed:	Jul-21-17 23:45	Jul-21-17 23:53	Jul-22-17 00:01	Jul-22-17 00:09	Jul-22-17 01:18	Jul-22-17 00:55
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		61.9 4.76	13.1 4.92	10.6 4.93	31.2 5.00	1170 24.6	337 5.00
TPH By SW8015 Mod	Extracted:	Jul-18-17 15:00	Jul-18-17 15:00		Jul-18-17 15:00	Jul-18-17 15:00	Jul-18-17 15:00
	Analyzed:	Jul-19-17 09:18	Jul-19-17 09:38		Jul-19-17 09:58	Jul-19-17 10:19	Jul-19-17 10:40
	Units/RL:	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		21.2 15.0	<14.9 14.9		<15.0 15.0	2200 74.9	72.8 15.0
Diesel Range Organics (DRO)		138 15.0	26.7 14.9		<15.0 15.0	8080 74.9	316 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<14.9 14.9		<15.0 15.0	1190 74.9	<15.0 15.0
Total TPH		159 15.0	26.7 14.9		<15.0 15.0	11500 74.9	389 15.0

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

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	557797-043	557797-044	557797-045	557797-046	557797-047	557797-048
	Field Id:	T7-2'	T7-3'	T7-4'	T7-6'	T7-12'	T8-Surf
	Depth:	2- ft	3- ft	4- ft	6- ft	12- ft	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jul-12-17 11:30	Jul-12-17 11:30	Jul-12-17 11:30	Jul-12-17 11:30	Jul-12-17 11:30	Jul-12-17 11:30
BTEX by EPA 8021B	Extracted:	Jul-21-17 15:30	Jul-21-17 15:30	Jul-24-17 08:00	Jul-21-17 14:00	Jul-21-17 14:00	Jul-24-17 08:00
	Analyzed:	Jul-22-17 14:25	Jul-22-17 14:44	Jul-24-17 15:13	Jul-21-17 20:00	Jul-22-17 01:54	Jul-24-17 14:54
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00202 0.00202	<0.00201 0.00201
Toluene		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00202 0.00202	0.00768 0.00201
Ethylbenzene		<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00202 0.00202	0.0734 0.00201
m,p-Xylenes		<0.00397 0.00397	0.0368 0.00399	0.00420 0.00396	<0.00401 0.00401	<0.00403 0.00403	0.292 0.00402
o-Xylene		<0.00198 0.00198	<0.00200 0.00200	0.00220 0.00198	<0.00200 0.00200	<0.00202 0.00202	0.169 0.00201
Total Xylenes		<0.00198 0.00198	0.0368 0.00200	0.00640 0.00198	<0.00200 0.00200	<0.00202 0.00202	0.461 0.00201
Total BTEX		<0.00198 0.00198	0.0368 0.00200	0.00640 0.00198	<0.00200 0.00200	<0.00202 0.00202	0.542 0.00201
Inorganic Anions by EPA 300/300.1	Extracted:	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30
	Analyzed:	Jul-22-17 01:25	Jul-22-17 01:33	Jul-22-17 01:41	Jul-22-17 02:04	Jul-22-17 02:11	Jul-22-17 02:19
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		150 4.96	23.2 4.87	106 4.73	152 4.90	275 4.97	1980 24.7
TPH By SW8015 Mod	Extracted:	Jul-18-17 15:00	Jul-19-17 14:00	Jul-19-17 14:00	Jul-19-17 14:00	Jul-19-17 14:00	Jul-19-17 14:00
	Analyzed:	Jul-19-17 11:00	Jul-19-17 16:59	Jul-19-17 19:18	Jul-19-17 19:41	Jul-19-17 20:04	Jul-19-17 20:27
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	328 15.0
Diesel Range Organics (DRO)		25.9 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	1530 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	359 15.0
Total TPH		25.9 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	2220 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 557797

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 State #001



Project Id:

Contact: Aaron Lieb

Project Location: Momentum 36 State

Date Received in Lab: Mon Jul-17-17 11:45 am

Report Date: 27-JUL-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	557797-049	557797-050	557797-051	557797-052	557797-053	557797-054
	<i>Field Id:</i>	T8-1'	T8-2'	T8-3'	T8-4'	T8-6'	T8-8'
	<i>Depth:</i>	1- ft	2- ft	3- ft	4- ft	6- ft	8- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jul-12-17 11:30	Jul-12-17 11:30	Jul-12-17 11:45	Jul-12-17 11:45	Jul-12-17 11:45	Jul-12-17 11:45
BTEX by EPA 8021B	<i>Extracted:</i>	Jul-24-17 08:00	Jul-24-17 08:00	Jul-24-17 08:00	Jul-24-17 08:00	Jul-24-17 08:00	Jul-24-17 08:00
	<i>Analyzed:</i>	Jul-24-17 13:19	Jul-24-17 15:39	Jul-24-17 15:59	Jul-24-17 16:18	Jul-24-17 13:01	Jul-24-17 14:35
	<i>Units/RL:</i>	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	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Toluene		<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Ethylbenzene		<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
m,p-Xylenes		<0.00402 0.00402	<0.00398 0.00398	<0.00404 0.00404	<0.00401 0.00401	<0.00399 0.00399	<0.00397 0.00397
o-Xylene		<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Total Xylenes		<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Total BTEX		<0.00201 0.00201	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Inorganic Anions by EPA 300/300.1	<i>Extracted:</i>	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30	Jul-21-17 16:30
	<i>Analyzed:</i>	Jul-22-17 02:27	Jul-22-17 02:34	Jul-22-17 02:42	Jul-22-17 03:05	Jul-22-17 03:13	Jul-22-17 03:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2360 23.3	229 4.98	19.4 4.82	7.20 4.94	20.3 5.01	45.0 5.02
TPH By SW8015 Mod	<i>Extracted:</i>	Jul-19-17 14:00	Jul-19-17 14:00	Jul-19-17 14:00	Jul-19-17 14:00	Jul-19-17 14:00	Jul-19-17 14:00
	<i>Analyzed:</i>	Jul-19-17 20:49	Jul-19-17 21:10	Jul-19-17 21:31	Jul-19-17 21:53	Jul-19-17 22:14	Jul-19-17 23:17
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		19.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0
Diesel Range Organics (DRO)		353 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9	69.3 15.0
Oil Range Hydrocarbons (ORO)		45.3 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0
Total TPH		417 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9	69.3 15.0

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Kelsey Brooks
Project Manager

Analytical Report 557797

for
COG Operating LLC

Project Manager: Aaron Lieb

Momentum 36 State #001

27-JUL-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

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

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

Xenco-San Antonio: Texas (T104704534)

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

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



27-JUL-17

Project Manager: **Aaron Lieb**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **557797**

Momentum 36 State #001

Project Address: Momentum 36 State

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) 557797. 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. 557797 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks

Project Manager

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COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1-Surf	S	07-12-17 09:30		557797-001
T1-1'	S	07-12-17 09:30	1 ft	557797-002
T1-2'	S	07-12-17 09:30	2 ft	557797-003
T1-3'	S	07-12-17 09:30	3 ft	557797-004
T1-4'	S	07-12-17 09:30	4 ft	557797-005
T1-6'	S	07-12-17 09:30	6 ft	557797-006
T1-8'	S	07-12-17 09:30	8 ft	557797-007
T2-Surf	S	07-12-17 09:30	ft	557797-008
T2-1'	S	07-12-17 09:30	1 ft	557797-009
T2-2'	S	07-12-17 09:30	2 ft	557797-010
T2-3'	S	07-12-17 10:00	3 ft	557797-011
T2-4'	S	07-12-17 10:00	4 ft	557797-012
T2-6'	S	07-12-17 10:00	6 ft	557797-013
T2-9'	S	07-12-17 10:00	9 ft	557797-014
T3-Surf	S	07-12-17 10:00	ft	557797-015
T3-1'	S	07-12-17 10:00	1 ft	557797-016
T3-2'	S	07-12-17 10:00	2 ft	557797-017
T3-3'	S	07-12-17 10:00	3 ft	557797-018
T3-4'	S	07-12-17 10:00	4 ft	557797-019
T3-6'	S	07-12-17 10:00	6 ft	557797-020
T4-Surf	S	07-12-17 10:30	ft	557797-021
T4-1'	S	07-12-17 10:30	1 ft	557797-022
T4-2'	S	07-12-17 10:30	2 ft	557797-023
T4-3'	S	07-12-17 10:30	3 ft	557797-024
T4-4'	S	07-12-17 10:30	4 ft	557797-025
T4-6'	S	07-12-17 10:30	6 ft	557797-026
T5-Surf	S	07-12-17 10:30	ft	557797-027
T5-1'	S	07-12-17 10:30	1 ft	557797-028
T5-2'	S	07-12-17 10:30	2 ft	557797-029
T5-3'	S	07-12-17 10:30	3 ft	557797-030
T5-4'	S	07-12-17 11:00	4 ft	557797-031
T5-6'	S	07-12-17 11:00	6 ft	557797-032
T5-8'	S	07-12-17 11:00	8 ft	557797-033
T6-Surf	S	07-12-17 11:00	ft	557797-034
T6-1'	S	07-12-17 11:00	1 ft	557797-035
T6-2'	S	07-12-17 11:00	2 ft	557797-036
T6-3'	S	07-12-17 11:00	3 ft	557797-037
T6-4'	S	07-12-17 11:00	4 ft	557797-038
T6-6'	S	07-12-17 11:00	6 ft	557797-039
T6-8'	S	07-12-17 11:00	8 ft	557797-040
T7-Surf	S	07-12-17 11:30	ft	557797-041
T7-1'	S	07-12-17 11:30	1 ft	557797-042
T7-2'	S	07-12-17 11:30	2 ft	557797-043



Sample Cross Reference 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

T7-3'	S	07-12-17 11:30	3 ft	557797-044
T7-4'	S	07-12-17 11:30	4 ft	557797-045
T7-6'	S	07-12-17 11:30	6 ft	557797-046
T7-12'	S	07-12-17 11:30	12 ft	557797-047
T8-Surf	S	07-12-17 11:30	ft	557797-048
T8-1'	S	07-12-17 11:30	1 ft	557797-049
T8-2'	S	07-12-17 11:30	2 ft	557797-050
T8-3'	S	07-12-17 11:45	3 ft	557797-051
T8-4'	S	07-12-17 11:45	4 ft	557797-052
T8-6'	S	07-12-17 11:45	6 ft	557797-053
T8-8'	S	07-12-17 11:45	8 ft	557797-054



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Momentum 36 State #001

Project ID:
Work Order Number(s): 557797

Report Date: 27-JUL-17
Date Received: 07/17/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3022826 BTEX by EPA 8021B

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

Batch: LBA-3022985 BTEX by EPA 8021B

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

Batch: LBA-3022986 BTEX by EPA 8021B

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

Batch: LBA-3022988 BTEX by EPA 8021B

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

Batch: LBA-3023055 BTEX by EPA 8021B

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

Batch: LBA-3023083 Inorganic Anions by EPA 300/300.1

Lab Sample ID 557797-031 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 557797-021, -022, -023, -024, -025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038, -039, -040.

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

Batch: LBA-3023231 BTEX by EPA 8021B

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



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T1-Surf**
Lab Sample Id: 557797-001

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 07.21.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	74.7	4.82	mg/kg	07.21.17 16.16		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 07.18.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	600	74.9	mg/kg	07.18.17 17.13		5
Diesel Range Organics (DRO)	C10C28DRO	5250	74.9	mg/kg	07.18.17 17.13		5
Oil Range Hydrocarbons (ORO)	PHCG2835	1090	74.9	mg/kg	07.18.17 17.13		5
Total TPH	PHC635	6940	74.9	mg/kg	07.18.17 17.13		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	07.18.17 17.13	
o-Terphenyl	84-15-1	94	%	70-135	07.18.17 17.13	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T1-Surf**
Lab Sample Id: 557797-001

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.21.17 13.06	U	1
Toluene	108-88-3	0.00723	0.00201	mg/kg	07.21.17 13.06		1
Ethylbenzene	100-41-4	0.0572	0.00201	mg/kg	07.21.17 13.06		1
m,p-Xylenes	179601-23-1	0.301	0.00402	mg/kg	07.21.17 13.06		1
o-Xylene	95-47-6	0.184	0.00201	mg/kg	07.21.17 13.06		1
Total Xylenes	1330-20-7	0.485	0.00201	mg/kg	07.21.17 13.06		1
Total BTEX		0.549	0.00201	mg/kg	07.21.17 13.06		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89		%	80-120	07.21.17 13.06	
1,4-Difluorobenzene	540-36-3	109		%	80-120	07.21.17 13.06	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-1'
Lab Sample Id: 557797-002

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.2	4.82	mg/kg	07.21.17 16.51		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	243	15.0	mg/kg	07.18.17 17.36		1
Diesel Range Organics (DRO)	C10C28DRO	775	15.0	mg/kg	07.18.17 17.36		1
Oil Range Hydrocarbons (ORO)	PHCG2835	90.5	15.0	mg/kg	07.18.17 17.36		1
Total TPH	PHC635	1110	15.0	mg/kg	07.18.17 17.36		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	106	%	70-135	07.18.17 17.36		
o-Terphenyl	84-15-1	106	%	70-135	07.18.17 17.36		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-1'
Lab Sample Id: 557797-002

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.21.17 12.47	U	1
Toluene	108-88-3	0.0177	0.00202	mg/kg	07.21.17 12.47		1
Ethylbenzene	100-41-4	0.267	0.00202	mg/kg	07.21.17 12.47		1
m,p-Xylenes	179601-23-1	0.791	0.00403	mg/kg	07.21.17 12.47		1
o-Xylene	95-47-6	0.329	0.00202	mg/kg	07.21.17 12.47		1
Total Xylenes	1330-20-7	1.12	0.00202	mg/kg	07.21.17 12.47		1
Total BTEX		1.40	0.00202	mg/kg	07.21.17 12.47		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	90	%	80-120	07.21.17 12.47		
4-Bromofluorobenzene	460-00-4	106	%	80-120	07.21.17 12.47		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-2'
Lab Sample Id: 557797-003

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<3.97	3.97	mg/kg	07.21.17 16.58	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.18.17 17.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.18.17 17.58	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.18.17 17.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.18.17 17.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-135	07.18.17 17.58	
o-Terphenyl	84-15-1	126	%	70-135	07.18.17 17.58	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-2'
Lab Sample Id: 557797-003

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.17 10.55	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.17 10.55	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.17 10.55	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.21.17 10.55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.17 10.55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.17 10.55	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.17 10.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	80-120	07.21.17 10.55		
1,4-Difluorobenzene	540-36-3	96	%	80-120	07.21.17 10.55		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-3'
Lab Sample Id: 557797-004

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.67	4.67	mg/kg	07.21.17 17.06	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.18.17 18.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.18.17 18.21	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.18.17 18.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.18.17 18.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	07.18.17 18.21	
o-Terphenyl	84-15-1	116	%	70-135	07.18.17 18.21	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-3'
Lab Sample Id: 557797-004

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.17 11.14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.17 11.14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.17 11.14	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.21.17 11.14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.17 11.14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.17 11.14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.17 11.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.21.17 11.14		
4-Bromofluorobenzene	460-00-4	110	%	80-120	07.21.17 11.14		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-4'
Lab Sample Id: 557797-005

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.83	4.83	mg/kg	07.21.17 17.14	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.18.17 19.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	07.18.17 19.30	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	07.18.17 19.30	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	07.18.17 19.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	07.18.17 19.30	
o-Terphenyl	84-15-1	119	%	70-135	07.18.17 19.30	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-4'
Lab Sample Id: 557797-005

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.21.17 11.33	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.21.17 11.33	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.21.17 11.33	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.21.17 11.33	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.21.17 11.33	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.21.17 11.33	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.21.17 11.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	80-120	07.21.17 11.33		
4-Bromofluorobenzene	460-00-4	116	%	80-120	07.21.17 11.33		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-6'
Lab Sample Id: 557797-006

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	07.21.17 17.37	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.18.17 19.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.18.17 19.52	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.18.17 19.52	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.18.17 19.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	07.18.17 19.52	
o-Terphenyl	84-15-1	119	%	70-135	07.18.17 19.52	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-6'
Lab Sample Id: 557797-006

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.17 11.52	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.17 11.52	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.17 11.52	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.21.17 11.52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.17 11.52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.17 11.52	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.17 11.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	80-120	07.21.17 11.52		
1,4-Difluorobenzene	540-36-3	100	%	80-120	07.21.17 11.52		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T1-8'
Lab Sample Id: 557797-007

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.84	4.84	mg/kg	07.21.17 17.44	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.18.17 20.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	07.18.17 20.14	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	07.18.17 20.14	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	07.18.17 20.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	07.18.17 20.14	
o-Terphenyl	84-15-1	116	%	70-135	07.18.17 20.14	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T1-8'**
Lab Sample Id: 557797-007

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.21.17 12.11	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.21.17 12.11	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.21.17 12.11	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.21.17 12.11	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.21.17 12.11	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.21.17 12.11	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.21.17 12.11	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	83	%	80-120	07.21.17 12.11		
1,4-Difluorobenzene	540-36-3	99	%	80-120	07.21.17 12.11		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T2-Surf'**
Lab Sample Id: 557797-008

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 07.21.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	334	4.89	mg/kg	07.21.17 17.52		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 07.18.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	2230	74.9	mg/kg	07.18.17 20.36		5
Diesel Range Organics (DRO)	C10C28DRO	14500	74.9	mg/kg	07.18.17 20.36		5
Oil Range Hydrocarbons (ORO)	PHCG2835	2960	74.9	mg/kg	07.18.17 20.36		5
Total TPH	PHC635	19700	74.9	mg/kg	07.18.17 20.36		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	111	%	70-135	07.18.17 20.36		
o-Terphenyl	84-15-1	102	%	70-135	07.18.17 20.36		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T2-Surf'**
Lab Sample Id: 557797-008

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.21.17 15.40	U	1
Toluene	108-88-3	0.0333	0.00199	mg/kg	07.21.17 15.40		1
Ethylbenzene	100-41-4	0.0801	0.00199	mg/kg	07.21.17 15.40		1
m,p-Xylenes	179601-23-1	0.103	0.00398	mg/kg	07.21.17 15.40		1
o-Xylene	95-47-6	0.169	0.00199	mg/kg	07.21.17 15.40		1
Total Xylenes	1330-20-7	0.272	0.00199	mg/kg	07.21.17 15.40		1
Total BTEX		0.385	0.00199	mg/kg	07.21.17 15.40		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	80-120	07.21.17 15.40		
1,4-Difluorobenzene	540-36-3	90	%	80-120	07.21.17 15.40		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-1'
Lab Sample Id: 557797-009

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.65	4.65	mg/kg	07.21.17 18.00	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	2050	74.9	mg/kg	07.18.17 20.57		5
Diesel Range Organics (DRO)	C10C28DRO	8170	74.9	mg/kg	07.18.17 20.57		5
Oil Range Hydrocarbons (ORO)	PHCG2835	1400	74.9	mg/kg	07.18.17 20.57		5
Total TPH	PHC635	11600	74.9	mg/kg	07.18.17 20.57		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	125	%	70-135	07.18.17 20.57		
o-Terphenyl	84-15-1	122	%	70-135	07.18.17 20.57		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-1'
Lab Sample Id: 557797-009

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.25.17 09.00

Basis: Wet Weight

Seq Number: 3023231

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.25.17 12.28	U	1
Toluene	108-88-3	0.290	0.00200	mg/kg	07.25.17 12.28		1
Ethylbenzene	100-41-4	3.02	0.0398	mg/kg	07.25.17 14.10	D	20
m,p-Xylenes	179601-23-1	6.96	0.0797	mg/kg	07.25.17 14.10	D	20
o-Xylene	95-47-6	3.88	0.0398	mg/kg	07.25.17 14.10	D	20
Total Xylenes	1330-20-7	10.8	0.0398	mg/kg	07.25.17 14.10		20
Total BTEX		14.2	0.00200	mg/kg	07.25.17 14.10		20
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	85	%	80-120	07.25.17 12.28		
1,4-Difluorobenzene	540-36-3	114	%	80-120	07.25.17 12.28		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-2'
Lab Sample Id: 557797-010

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.9	4.75	mg/kg	07.21.17 18.08		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	297	15.0	mg/kg	07.18.17 21.19		1
Diesel Range Organics (DRO)	C10C28DRO	1110	15.0	mg/kg	07.18.17 21.19		1
Oil Range Hydrocarbons (ORO)	PHCG2835	174	15.0	mg/kg	07.18.17 21.19		1
Total TPH	PHC635	1580	15.0	mg/kg	07.18.17 21.19		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	115	%	70-135	07.18.17 21.19		
o-Terphenyl	84-15-1	105	%	70-135	07.18.17 21.19		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-2'
Lab Sample Id: 557797-010

Matrix: Soil
Date Collected: 07.12.17 09.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.21.17 15.20	U	1
Toluene	108-88-3	0.0465	0.00202	mg/kg	07.21.17 15.20		1
Ethylbenzene	100-41-4	0.180	0.00202	mg/kg	07.21.17 15.20		1
m,p-Xylenes	179601-23-1	0.496	0.00404	mg/kg	07.21.17 15.20		1
o-Xylene	95-47-6	0.283	0.00202	mg/kg	07.21.17 15.20		1
Total Xylenes	1330-20-7	0.779	0.00202	mg/kg	07.21.17 15.20		1
Total BTEX		1.01	0.00202	mg/kg	07.21.17 15.20		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99		%	80-120	07.21.17 15.20	
1,4-Difluorobenzene	540-36-3	88		%	80-120	07.21.17 15.20	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-3'
Lab Sample Id: 557797-011

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.85	4.85	mg/kg	07.21.17 18.15		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	542	15.0	mg/kg	07.18.17 22.21		1
Diesel Range Organics (DRO)	C10C28DRO	1820	15.0	mg/kg	07.18.17 22.21		1
Oil Range Hydrocarbons (ORO)	PHCG2835	367	15.0	mg/kg	07.18.17 22.21		1
Total TPH	PHC635	2730	15.0	mg/kg	07.18.17 22.21		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	07.18.17 22.21	
o-Terphenyl	84-15-1	107	%	70-135	07.18.17 22.21	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-3'
Lab Sample Id: 557797-011

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3023055

Date Prep: 07.21.17 14.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00913	0.00202	mg/kg	07.22.17 02.13		1
Toluene	108-88-3	1.35	0.0497	mg/kg	07.25.17 08.18	D	25
Ethylbenzene	100-41-4	2.82	0.0497	mg/kg	07.25.17 08.18	D	25
m,p-Xylenes	179601-23-1	8.07	0.0994	mg/kg	07.25.17 08.18	D	25
o-Xylene	95-47-6	3.90	0.0497	mg/kg	07.25.17 08.18	D	25
Total Xylenes	1330-20-7	12.0	0.0497	mg/kg	07.25.17 08.18		25
Total BTEX		16.1	0.00202	mg/kg	07.25.17 08.18		25
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84		%	80-120	07.22.17 02.13	
1,4-Difluorobenzene	540-36-3	84		%	80-120	07.22.17 02.13	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-4'
Lab Sample Id: 557797-012

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.84	4.84	mg/kg	07.21.17 18.38	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	103	15.0	mg/kg	07.18.17 22.41		1
Diesel Range Organics (DRO)	C10C28DRO	315	15.0	mg/kg	07.18.17 22.41		1
Oil Range Hydrocarbons (ORO)	PHCG2835	18.4	15.0	mg/kg	07.18.17 22.41		1
Total TPH	PHC635	436	15.0	mg/kg	07.18.17 22.41		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	114	%	70-135	07.18.17 22.41		
o-Terphenyl	84-15-1	120	%	70-135	07.18.17 22.41		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-4'
Lab Sample Id: 557797-012

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.21.17 15.02	U	1
Toluene	108-88-3	0.0632	0.00201	mg/kg	07.21.17 15.02		1
Ethylbenzene	100-41-4	0.123	0.00201	mg/kg	07.21.17 15.02		1
m,p-Xylenes	179601-23-1	0.264	0.00402	mg/kg	07.21.17 15.02		1
o-Xylene	95-47-6	0.206	0.00201	mg/kg	07.21.17 15.02		1
Total Xylenes	1330-20-7	0.470	0.00201	mg/kg	07.21.17 15.02		1
Total BTEX		0.656	0.00201	mg/kg	07.21.17 15.02		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.21.17 15.02		
4-Bromofluorobenzene	460-00-4	102	%	80-120	07.21.17 15.02		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-6'
Lab Sample Id: 557797-013

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.21.17 15.00

Basis: Wet Weight

Seq Number: 3023079

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.76	4.76	mg/kg	07.21.17 18.46	U	1



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-9'
Lab Sample Id: 557797-014

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 9 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.65	4.65	mg/kg	07.21.17 19.09	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	31.8	15.0	mg/kg	07.18.17 23.00		1
Diesel Range Organics (DRO)	C10C28DRO	323	15.0	mg/kg	07.18.17 23.00		1
Oil Range Hydrocarbons (ORO)	PHCG2835	25.9	15.0	mg/kg	07.18.17 23.00		1
Total TPH	PHC635	381	15.0	mg/kg	07.18.17 23.00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	07.18.17 23.00	
o-Terphenyl	84-15-1	117	%	70-135	07.18.17 23.00	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T2-9'
Lab Sample Id: 557797-014

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 9 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.21.17 14.43	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.21.17 14.43	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.21.17 14.43	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.21.17 14.43	U	1
o-Xylene	95-47-6	0.00257	0.00199	mg/kg	07.21.17 14.43		1
Total Xylenes	1330-20-7	0.00257	0.00199	mg/kg	07.21.17 14.43		1
Total BTEX		0.00257	0.00199	mg/kg	07.21.17 14.43		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	94		%	80-120	07.21.17 14.43	
4-Bromofluorobenzene	460-00-4	110		%	80-120	07.21.17 14.43	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T3-Surf**
Lab Sample Id: 557797-015

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 07.21.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.4	4.95	mg/kg	07.21.17 19.17		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 07.18.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	41.1	15.0	mg/kg	07.18.17 23.20		1
Diesel Range Organics (DRO)	C10C28DRO	295	15.0	mg/kg	07.18.17 23.20		1
Oil Range Hydrocarbons (ORO)	PHCG2835	36.0	15.0	mg/kg	07.18.17 23.20		1
Total TPH	PHC635	372	15.0	mg/kg	07.18.17 23.20		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	07.18.17 23.20	
o-Terphenyl	84-15-1	118	%	70-135	07.18.17 23.20	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T3-Surf**
Lab Sample Id: 557797-015

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.17 14.22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.17 14.22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.17 14.22	U	1
m,p-Xylenes	179601-23-1	0.00519	0.00399	mg/kg	07.21.17 14.22		1
o-Xylene	95-47-6	0.00431	0.00200	mg/kg	07.21.17 14.22		1
Total Xylenes	1330-20-7	0.00950	0.00200	mg/kg	07.21.17 14.22		1
Total BTEX		0.00950	0.00200	mg/kg	07.21.17 14.22		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	95		%	80-120	07.21.17 14.22	
4-Bromofluorobenzene	460-00-4	114		%	80-120	07.21.17 14.22	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-1'
Lab Sample Id: 557797-016

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.76	4.76	mg/kg	07.21.17 19.24	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.18.17 23.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	40.4	15.0	mg/kg	07.18.17 23.39		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.18.17 23.39	U	1
Total TPH	PHC635	40.4	15.0	mg/kg	07.18.17 23.39		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	129	%	70-135	07.18.17 23.39	
o-Terphenyl	84-15-1	129	%	70-135	07.18.17 23.39	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-1'
Lab Sample Id: 557797-016

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 07.30

Basis: Wet Weight

Seq Number: 3022985

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.21.17 14.03	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.21.17 14.03	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.21.17 14.03	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	07.21.17 14.03	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.21.17 14.03	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.21.17 14.03	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.21.17 14.03	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	112		%	80-120	07.21.17 14.03	
1,4-Difluorobenzene	540-36-3	95		%	80-120	07.21.17 14.03	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-2'
Lab Sample Id: 557797-017

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	07.21.17 19.32	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.18.17 23.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	07.18.17 23.59	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	07.18.17 23.59	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	07.18.17 23.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	114	%	70-135	07.18.17 23.59		
o-Terphenyl	84-15-1	115	%	70-135	07.18.17 23.59		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-2'
Lab Sample Id: 557797-017

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.20.17 13.30

Basis: Wet Weight

Seq Number: 3022826

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.17 02.44	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.17 02.44	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.17 02.44	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.21.17 02.44	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.17 02.44	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.17 02.44	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.17 02.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	80-120	07.21.17 02.44		
4-Bromofluorobenzene	460-00-4	107	%	80-120	07.21.17 02.44		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-3'
Lab Sample Id: 557797-018

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.86	4.86	mg/kg	07.21.17 19.40	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 00.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 00.20	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 00.20	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 00.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	07.19.17 00.20	
o-Terphenyl	84-15-1	108	%	70-135	07.19.17 00.20	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-3'
Lab Sample Id: 557797-018

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3022826

Date Prep: 07.20.17 13.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.17 03.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.17 03.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.17 03.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.21.17 03.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.17 03.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.17 03.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.17 03.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	80-120	07.21.17 03.02		
4-Bromofluorobenzene	460-00-4	118	%	80-120	07.21.17 03.02		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-4'
Lab Sample Id: 557797-019

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.83	4.83	mg/kg	07.21.17 19.47	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 00.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 00.40	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 00.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 00.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	07.19.17 00.40	
o-Terphenyl	84-15-1	104	%	70-135	07.19.17 00.40	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-4'
Lab Sample Id: 557797-019

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.20.17 13.30

Basis: Wet Weight

Seq Number: 3022826

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.21.17 03.21	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.21.17 03.21	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.21.17 03.21	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.21.17 03.21	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.21.17 03.21	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.21.17 03.21	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.21.17 03.21	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	94		%	80-120	07.21.17 03.21	
4-Bromofluorobenzene	460-00-4	86		%	80-120	07.21.17 03.21	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-6'
Lab Sample Id: 557797-020

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023079

Date Prep: 07.21.17 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.78	4.78	mg/kg	07.21.17 19.55	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 01.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 01.00	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 01.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 01.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	07.19.17 01.00	
o-Terphenyl	84-15-1	109	%	70-135	07.19.17 01.00	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T3-6'
Lab Sample Id: 557797-020

Matrix: Soil
Date Collected: 07.12.17 10.00

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.20.17 13.30

Basis: Wet Weight

Seq Number: 3022826

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.21.17 03.40	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.21.17 03.40	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.21.17 03.40	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.21.17 03.40	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.21.17 03.40	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.21.17 03.40	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.21.17 03.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	80-120	07.21.17 03.40		
4-Bromofluorobenzene	460-00-4	114	%	80-120	07.21.17 03.40		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-Surf**
Lab Sample Id: 557797-021

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 07.21.17 15.40

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	133	4.87	mg/kg	07.21.17 20.41		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022605

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 07.18.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	4310	74.9	mg/kg	07.19.17 01.20		5
Diesel Range Organics (DRO)	C10C28DRO	16000	74.9	mg/kg	07.19.17 01.20		5
Oil Range Hydrocarbons (ORO)	PHCG2835	3020	74.9	mg/kg	07.19.17 01.20		5
Total TPH	PHC635	23300	74.9	mg/kg	07.19.17 01.20		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	112	%	70-135	07.19.17 01.20		
o-Terphenyl	84-15-1	93	%	70-135	07.19.17 01.20		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-Surf**
Lab Sample Id: 557797-021

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.25.17 09.00

Basis: Wet Weight

Seq Number: 3023231

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.25.17 11.27	U	1
Toluene	108-88-3	0.133	0.00199	mg/kg	07.25.17 11.27		1
Ethylbenzene	100-41-4	0.222	0.00199	mg/kg	07.25.17 11.27		1
m,p-Xylenes	179601-23-1	42.7	0.402	mg/kg	07.25.17 18.27	D	100
o-Xylene	95-47-6	0.396	0.00199	mg/kg	07.25.17 11.27		1
Total Xylenes	1330-20-7	43.1	0.00199	mg/kg	07.25.17 18.27		100
Total BTEX		43.5	0.00199	mg/kg	07.25.17 18.27		100
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	80-120	07.25.17 11.27		
4-Bromofluorobenzene	460-00-4	85	%	80-120	07.25.17 11.27		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-1'**
Lab Sample Id: 557797-022

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6.82	4.97	mg/kg	07.21.17 21.04		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	22.8	15.0	mg/kg	07.19.17 03.04		1
Diesel Range Organics (DRO)	C10C28DRO	88.5	15.0	mg/kg	07.19.17 03.04		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 03.04	U	1
Total TPH	PHC635	111	15.0	mg/kg	07.19.17 03.04		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	106	%	70-135	07.19.17 03.04		
o-Terphenyl	84-15-1	109	%	70-135	07.19.17 03.04		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-1'**
Lab Sample Id: 557797-022

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3022826

Date Prep: 07.20.17 13.30

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	07.21.17 03.59	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.21.17 03.59	U	1
Ethylbenzene	100-41-4	0.0151	0.00199	mg/kg	07.21.17 03.59		1
m,p-Xylenes	179601-23-1	0.0876	0.00398	mg/kg	07.21.17 03.59		1
o-Xylene	95-47-6	0.0606	0.00199	mg/kg	07.21.17 03.59		1
Total Xylenes	1330-20-7	0.148	0.00199	mg/kg	07.21.17 03.59		1
Total BTEX		0.163	0.00199	mg/kg	07.21.17 03.59		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118		%	80-120	07.21.17 03.59	
1,4-Difluorobenzene	540-36-3	95		%	80-120	07.21.17 03.59	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T4-2'
Lab Sample Id: 557797-023

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	07.21.17 21.12	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 04.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 04.04	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 04.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 04.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	07.19.17 04.04	
o-Terphenyl	84-15-1	119	%	70-135	07.19.17 04.04	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T4-2'
Lab Sample Id: 557797-023

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.25.17 09.00

Basis: Wet Weight

Seq Number: 3023231

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.25.17 12.53	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.25.17 12.53	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.25.17 12.53	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.25.17 12.53	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.25.17 12.53	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.25.17 12.53	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.25.17 12.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	80-120	07.25.17 12.53		
4-Bromofluorobenzene	460-00-4	107	%	80-120	07.25.17 12.53		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T4-3'
Lab Sample Id: 557797-024

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4.92	4.71	mg/kg	07.21.17 21.20		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 04.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 04.25	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 04.25	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 04.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	109	%	70-135	07.19.17 04.25		
o-Terphenyl	84-15-1	114	%	70-135	07.19.17 04.25		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-3'**
Lab Sample Id: 557797-024

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3022985

Date Prep: 07.21.17 07.30

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	07.21.17 10.17	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.21.17 10.17	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.21.17 10.17	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.21.17 10.17	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.21.17 10.17	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.21.17 10.17	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.21.17 10.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	84	%	80-120	07.21.17 10.17		
1,4-Difluorobenzene	540-36-3	94	%	80-120	07.21.17 10.17		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T4-4'
Lab Sample Id: 557797-025

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.91	4.91	mg/kg	07.21.17 21.27	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 04.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 04.46	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 04.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 04.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	07.19.17 04.46	
o-Terphenyl	84-15-1	112	%	70-135	07.19.17 04.46	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-4'**
Lab Sample Id: 557797-025

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.24.17 12.42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.24.17 12.42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.24.17 12.42	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.24.17 12.42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.24.17 12.42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.24.17 12.42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.24.17 12.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	80-120	07.24.17 12.42		
1,4-Difluorobenzene	540-36-3	95	%	80-120	07.24.17 12.42		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-6'**
Lab Sample Id: 557797-026

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.59	4.92	mg/kg	07.21.17 21.50		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.19.17 05.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	07.19.17 05.07	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	07.19.17 05.07	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	07.19.17 05.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	114	%	70-135	07.19.17 05.07		
o-Terphenyl	84-15-1	116	%	70-135	07.19.17 05.07		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T4-6'**
Lab Sample Id: 557797-026

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.17 05.19	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.17 05.19	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.17 05.19	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.17 05.19	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.17 05.19	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.17 05.19	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.17 05.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	80-120	07.22.17 05.19		
4-Bromofluorobenzene	460-00-4	116	%	80-120	07.22.17 05.19		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T5-Surf**
Lab Sample Id: 557797-027

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.21.17 15.40

Basis: Wet Weight

Seq Number: 3023083

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	278	4.88	mg/kg	07.21.17 21.58		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 07.18.17 15.00

Basis: Wet Weight

Seq Number: 3022606

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	2840	74.8	mg/kg	07.19.17 05.28		5
Diesel Range Organics (DRO)	C10C28DRO	16100	74.8	mg/kg	07.19.17 05.28		5
Oil Range Hydrocarbons (ORO)	PHCG2835	3180	74.8	mg/kg	07.19.17 05.28		5
Total TPH	PHC635	22100	74.8	mg/kg	07.19.17 05.28		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	07.19.17 05.28	
o-Terphenyl	84-15-1	86	%	70-135	07.19.17 05.28	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T5-Surf**
Lab Sample Id: 557797-027

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00266	0.00199	mg/kg	07.22.17 10.22		1
Toluene	108-88-3	0.313	0.00199	mg/kg	07.22.17 10.22		1
Ethylbenzene	100-41-4	0.361	0.00199	mg/kg	07.22.17 10.22		1
m,p-Xylenes	179601-23-1	18.8	0.100	mg/kg	07.25.17 08.37	D	25
o-Xylene	95-47-6	9.99	0.0502	mg/kg	07.25.17 08.37	D	25
Total Xylenes	1330-20-7	28.8	0.0502	mg/kg	07.25.17 08.37		25
Total BTEX		29.5	0.00199	mg/kg	07.25.17 08.37		25
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	80-120	07.22.17 10.22		
1,4-Difluorobenzene	540-36-3	91	%	80-120	07.22.17 10.22		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-1'
Lab Sample Id: 557797-028

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.44	4.89	mg/kg	07.21.17 22.06		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	1240	74.9	mg/kg	07.19.17 05.50		5
Diesel Range Organics (DRO)	C10C28DRO	4820	74.9	mg/kg	07.19.17 05.50		5
Oil Range Hydrocarbons (ORO)	PHCG2835	723	74.9	mg/kg	07.19.17 05.50		5
Total TPH	PHC635	6780	74.9	mg/kg	07.19.17 05.50		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	07.19.17 05.50	
o-Terphenyl	84-15-1	115	%	70-135	07.19.17 05.50	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-1'
Lab Sample Id: 557797-028

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3023055

Date Prep: 07.21.17 15.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.17 11.38	U	1
Toluene	108-88-3	0.295	0.00200	mg/kg	07.22.17 11.38		1
Ethylbenzene	100-41-4	7.02	0.199	mg/kg	07.24.17 16.37	D	100
m,p-Xylenes	179601-23-1	16.9	0.398	mg/kg	07.24.17 16.37	D	100
o-Xylene	95-47-6	8.58	0.199	mg/kg	07.24.17 16.37	D	100
Total Xylenes	1330-20-7	25.5	0.199	mg/kg	07.24.17 16.37		100
Total BTEX		32.8	0.00200	mg/kg	07.24.17 16.37		100
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	88	%	80-120	07.22.17 11.38		
4-Bromofluorobenzene	460-00-4	106	%	80-120	07.22.17 11.38		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-2'
Lab Sample Id: 557797-029

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.8	4.96	mg/kg	07.21.17 22.13		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	30.0	15.0	mg/kg	07.19.17 06.11		1
Diesel Range Organics (DRO)	C10C28DRO	296	15.0	mg/kg	07.19.17 06.11		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 06.11	U	1
Total TPH	PHC635	326	15.0	mg/kg	07.19.17 06.11		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	110	%	70-135	07.19.17 06.11		
o-Terphenyl	84-15-1	109	%	70-135	07.19.17 06.11		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-2'
Lab Sample Id: 557797-029

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.22.17 10.03	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.22.17 10.03	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.22.17 10.03	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.22.17 10.03	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.22.17 10.03	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.22.17 10.03	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.22.17 10.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	87	%	80-120	07.22.17 10.03		
1,4-Difluorobenzene	540-36-3	112	%	80-120	07.22.17 10.03		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-3'
Lab Sample Id: 557797-030

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.84	4.84	mg/kg	07.21.17 22.21	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 06.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 06.32	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 06.32	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 06.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	07.19.17 06.32	
o-Terphenyl	84-15-1	105	%	70-135	07.19.17 06.32	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-3'
Lab Sample Id: 557797-030

Matrix: Soil
Date Collected: 07.12.17 10.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3022988

Date Prep: 07.21.17 15.30

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	07.22.17 09.44	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.22.17 09.44	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.22.17 09.44	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.17 09.44	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.17 09.44	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.17 09.44	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.22.17 09.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.22.17 09.44		
4-Bromofluorobenzene	460-00-4	109	%	80-120	07.22.17 09.44		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-4'
Lab Sample Id: 557797-031

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.5	4.80	mg/kg	07.21.17 22.29		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 06.53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 06.53	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 06.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 06.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	104	%	70-135	07.19.17 06.53		
o-Terphenyl	84-15-1	108	%	70-135	07.19.17 06.53		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-4'
Lab Sample Id: 557797-031

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.17 09.25	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.17 09.25	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.17 09.25	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.17 09.25	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.17 09.25	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.17 09.25	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.17 09.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	07.22.17 09.25		
1,4-Difluorobenzene	540-36-3	96	%	80-120	07.22.17 09.25		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-6'
Lab Sample Id: 557797-032

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.21.17 15.40

Basis: Wet Weight

Seq Number: 3023083

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.3	4.96	mg/kg	07.21.17 22.52		1



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-8'
Lab Sample Id: 557797-033

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	118	4.75	mg/kg	07.21.17 22.59		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 07.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	132	15.0	mg/kg	07.19.17 07.55		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 07.55	U	1
Total TPH	PHC635	132	15.0	mg/kg	07.19.17 07.55		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	105	%	70-135	07.19.17 07.55		
o-Terphenyl	84-15-1	108	%	70-135	07.19.17 07.55		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T5-8'
Lab Sample Id: 557797-033

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.17 15.03	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.17 15.03	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.17 15.03	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.17 15.03	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.17 15.03	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.17 15.03	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.17 15.03	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	95		%	80-120	07.22.17 15.03	
4-Bromofluorobenzene	460-00-4	116		%	80-120	07.22.17 15.03	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-Surf**
Lab Sample Id: 557797-034

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 07.21.17 15.40

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	735	5.00	mg/kg	07.21.17 23.22		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 07.18.17 15.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	274	15.0	mg/kg	07.19.17 08.16		1
Diesel Range Organics (DRO)	C10C28DRO	1120	15.0	mg/kg	07.19.17 08.16		1
Oil Range Hydrocarbons (ORO)	PHCG2835	153	15.0	mg/kg	07.19.17 08.16		1
Total TPH	PHC635	1550	15.0	mg/kg	07.19.17 08.16		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	108	%	70-135	07.19.17 08.16		
o-Terphenyl	84-15-1	94	%	70-135	07.19.17 08.16		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-Surf**
Lab Sample Id: 557797-034

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.17 15.22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.22.17 15.22	U	1
Ethylbenzene	100-41-4	0.0126	0.00199	mg/kg	07.22.17 15.22		1
m,p-Xylenes	179601-23-1	0.203	0.00398	mg/kg	07.22.17 15.22		1
o-Xylene	95-47-6	0.123	0.00199	mg/kg	07.22.17 15.22		1
Total Xylenes	1330-20-7	0.326	0.00199	mg/kg	07.22.17 15.22		1
Total BTEX		0.339	0.00199	mg/kg	07.22.17 15.22		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	90		%	80-120	07.22.17 15.22	
4-Bromofluorobenzene	460-00-4	107		%	80-120	07.22.17 15.22	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-1'**
Lab Sample Id: 557797-035

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	81.7	4.88	mg/kg	07.21.17 23.30		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 08.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	18.4	15.0	mg/kg	07.19.17 08.37		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 08.37	U	1
Total TPH	PHC635	18.4	15.0	mg/kg	07.19.17 08.37		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	102	%	70-135	07.19.17 08.37		
o-Terphenyl	84-15-1	107	%	70-135	07.19.17 08.37		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-1'**
Lab Sample Id: 557797-035

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.17 13.29	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.17 13.29	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.17 13.29	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.17 13.29	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.17 13.29	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.17 13.29	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.17 13.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	80-120	07.22.17 13.29		
1,4-Difluorobenzene	540-36-3	95	%	80-120	07.22.17 13.29		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-2'**
Lab Sample Id: 557797-036

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.83	4.83	mg/kg	07.21.17 23.38	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 08.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 08.58	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 08.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 08.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	07.19.17 08.58	
o-Terphenyl	84-15-1	117	%	70-135	07.19.17 08.58	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-2'**
Lab Sample Id: 557797-036

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3022988

Date Prep: 07.21.17 15.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.17 13.12	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.17 13.12	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.17 13.12	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.22.17 13.12	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.17 13.12	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.17 13.12	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.17 13.12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	80-120	07.22.17 13.12		
4-Bromofluorobenzene	460-00-4	83	%	80-120	07.22.17 13.12		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-3'**
Lab Sample Id: 557797-037

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.9	4.76	mg/kg	07.21.17 23.45		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	21.2	15.0	mg/kg	07.19.17 09.18		1
Diesel Range Organics (DRO)	C10C28DRO	138	15.0	mg/kg	07.19.17 09.18		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 09.18	U	1
Total TPH	PHC635	159	15.0	mg/kg	07.19.17 09.18		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	109	%	70-135	07.19.17 09.18		
o-Terphenyl	84-15-1	113	%	70-135	07.19.17 09.18		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-3'**
Lab Sample Id: 557797-037

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.22.17 12.53	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.22.17 12.53	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.22.17 12.53	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.22.17 12.53	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.22.17 12.53	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.22.17 12.53	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.22.17 12.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	80-120	07.22.17 12.53		
1,4-Difluorobenzene	540-36-3	93	%	80-120	07.22.17 12.53		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-4'** Matrix: Soil Date Received: 07.17.17 11.45
Lab Sample Id: 557797-038 Date Collected: 07.12.17 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: 07.21.17 15.40 Basis: Wet Weight
Seq Number: 3023083

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.1	4.92	mg/kg	07.21.17 23.53		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 07.18.17 15.00 Basis: Wet Weight
Seq Number: 3022606

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.19.17 09.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	26.7	14.9	mg/kg	07.19.17 09.38		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	07.19.17 09.38	U	1
Total TPH	PHC635	26.7	14.9	mg/kg	07.19.17 09.38		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	07.19.17 09.38	
o-Terphenyl	84-15-1	109	%	70-135	07.19.17 09.38	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-4'**
Lab Sample Id: 557797-038

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.22.17 12.34	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.22.17 12.34	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.22.17 12.34	U	1
m,p-Xylenes	179601-23-1	0.00421	0.00404	mg/kg	07.22.17 12.34		1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.22.17 12.34	U	1
Total Xylenes	1330-20-7	0.00421	0.00202	mg/kg	07.22.17 12.34		1
Total BTEX		0.00421	0.00202	mg/kg	07.22.17 12.34		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	80-120	07.22.17 12.34		
1,4-Difluorobenzene	540-36-3	93	%	80-120	07.22.17 12.34		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-6'**
Lab Sample Id: 557797-039

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 07.21.17 15.40

Basis: Wet Weight

Seq Number: 3023083

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.6	4.93	mg/kg	07.22.17 00.01		1



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-8'**
Lab Sample Id: 557797-040

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023083

Date Prep: 07.21.17 15.40

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	31.2	5.00	mg/kg	07.22.17 00.09		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 09.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 09.58	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 09.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 09.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	106	%	70-135	07.19.17 09.58		
o-Terphenyl	84-15-1	107	%	70-135	07.19.17 09.58		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T6-8'**
Lab Sample Id: 557797-040

Matrix: Soil
Date Collected: 07.12.17 11.00

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.17 11.19	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.22.17 11.19	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.22.17 11.19	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.17 11.19	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.17 11.19	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.17 11.19	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.22.17 11.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	07.22.17 11.19		
1,4-Difluorobenzene	540-36-3	94	%	80-120	07.22.17 11.19		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T7-Surf**
Lab Sample Id: 557797-041

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Prep Method: E300P

% Moisture:

Date Prep: 07.21.17 16.30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1170	24.6	mg/kg	07.22.17 01.18		5

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Prep Method: TX1005P

% Moisture:

Date Prep: 07.18.17 15.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	2200	74.9	mg/kg	07.19.17 10.19		5
Diesel Range Organics (DRO)	C10C28DRO	8080	74.9	mg/kg	07.19.17 10.19		5
Oil Range Hydrocarbons (ORO)	PHCG2835	1190	74.9	mg/kg	07.19.17 10.19		5
Total TPH	PHC635	11500	74.9	mg/kg	07.19.17 10.19		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	104	%	70-135	07.19.17 10.19		
o-Terphenyl	84-15-1	95	%	70-135	07.19.17 10.19		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T7-Surf**
Lab Sample Id: 557797-041

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.17 13.48	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.22.17 13.48	U	1
Ethylbenzene	100-41-4	0.141	0.00199	mg/kg	07.22.17 13.48		1
m,p-Xylenes	179601-23-1	8.45	0.0806	mg/kg	07.25.17 07.59	D	20
o-Xylene	95-47-6	1.73	0.0403	mg/kg	07.25.17 07.59	D	20
Total Xylenes	1330-20-7	10.2	0.0403	mg/kg	07.25.17 07.59		20
Total BTEX		10.3	0.00199	mg/kg	07.25.17 07.59		20
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	80		%	80-120	07.22.17 13.48	
4-Bromofluorobenzene	460-00-4	94		%	80-120	07.22.17 13.48	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-1'
Lab Sample Id: 557797-042

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	337	5.00	mg/kg	07.22.17 00.55		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	72.8	15.0	mg/kg	07.19.17 10.40		1
Diesel Range Organics (DRO)	C10C28DRO	316	15.0	mg/kg	07.19.17 10.40		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 10.40	U	1
Total TPH	PHC635	389	15.0	mg/kg	07.19.17 10.40		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	124	%	70-135	07.19.17 10.40		
o-Terphenyl	84-15-1	128	%	70-135	07.19.17 10.40		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-1'
Lab Sample Id: 557797-042

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.24.17 12.23	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.24.17 12.23	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.24.17 12.23	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.24.17 12.23	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.24.17 12.23	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.24.17 12.23	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.24.17 12.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	80-120	07.24.17 12.23		
1,4-Difluorobenzene	540-36-3	93	%	80-120	07.24.17 12.23		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-2'
Lab Sample Id: 557797-043

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	150	4.96	mg/kg	07.22.17 01.25		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022606

Date Prep: 07.18.17 15.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 11.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	25.9	15.0	mg/kg	07.19.17 11.00		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 11.00	U	1
Total TPH	PHC635	25.9	15.0	mg/kg	07.19.17 11.00		1

Surrogate

1-Chlorooctane

o-Terphenyl

Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
111-85-3	109	%	70-135	07.19.17 11.00	
84-15-1	114	%	70-135	07.19.17 11.00	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-2'
Lab Sample Id: 557797-043

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.22.17 14.25	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.22.17 14.25	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.22.17 14.25	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.22.17 14.25	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.22.17 14.25	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.22.17 14.25	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.22.17 14.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	07.22.17 14.25		
1,4-Difluorobenzene	540-36-3	95	%	80-120	07.22.17 14.25		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-3'
Lab Sample Id: 557797-044

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.2	4.87	mg/kg	07.22.17 01.33		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 16.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 16.59	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 16.59	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 16.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	07.19.17 16.59	
o-Terphenyl	84-15-1	112	%	70-135	07.19.17 16.59	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-3'
Lab Sample Id: 557797-044

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 15.30

Basis: Wet Weight

Seq Number: 3022988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.17 14.44	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.17 14.44	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.17 14.44	U	1
m,p-Xylenes	179601-23-1	0.0368	0.00399	mg/kg	07.22.17 14.44		1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.17 14.44	U	1
Total Xylenes	1330-20-7	0.0368	0.00200	mg/kg	07.22.17 14.44		1
Total BTEX		0.0368	0.00200	mg/kg	07.22.17 14.44		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84		%	80-120	07.22.17 14.44	
1,4-Difluorobenzene	540-36-3	106		%	80-120	07.22.17 14.44	



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COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-4'
Lab Sample Id: 557797-045

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	106	4.73	mg/kg	07.22.17 01.41		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 19.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 19.18	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 19.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 19.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	07.19.17 19.18	
o-Terphenyl	84-15-1	99	%	70-135	07.19.17 19.18	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-4'
Lab Sample Id: 557797-045

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.24.17 15.13	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.24.17 15.13	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.24.17 15.13	U	1
m,p-Xylenes	179601-23-1	0.00420	0.00396	mg/kg	07.24.17 15.13		1
o-Xylene	95-47-6	0.00220	0.00198	mg/kg	07.24.17 15.13		1
Total Xylenes	1330-20-7	0.00640	0.00198	mg/kg	07.24.17 15.13		1
Total BTEX		0.00640	0.00198	mg/kg	07.24.17 15.13		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	117		%	80-120	07.24.17 15.13	
1,4-Difluorobenzene	540-36-3	95		%	80-120	07.24.17 15.13	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-6'
Lab Sample Id: 557797-046

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	152	4.90	mg/kg	07.22.17 02.04		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 19.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 19.41	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 19.41	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 19.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	07.19.17 19.41	
o-Terphenyl	84-15-1	95	%	70-135	07.19.17 19.41	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-6'
Lab Sample Id: 557797-046

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 14.00

Basis: Wet Weight

Seq Number: 3022986

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.21.17 20.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.21.17 20.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.21.17 20.00	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.21.17 20.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.21.17 20.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.21.17 20.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.21.17 20.00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	80-120	07.21.17 20.00		
1,4-Difluorobenzene	540-36-3	96	%	80-120	07.21.17 20.00		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-12'
Lab Sample Id: 557797-047

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 12 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	275	4.97	mg/kg	07.22.17 02.11		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 20.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 20.04	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 20.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 20.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	07.19.17 20.04	
o-Terphenyl	84-15-1	107	%	70-135	07.19.17 20.04	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: T7-12'
Lab Sample Id: 557797-047

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 12 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.21.17 14.00

Basis: Wet Weight

Seq Number: 3022986

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.22.17 01.54	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.22.17 01.54	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.22.17 01.54	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.22.17 01.54	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.22.17 01.54	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.22.17 01.54	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.22.17 01.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	80-120	07.22.17 01.54		
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.22.17 01.54		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-Surf**
Lab Sample Id: 557797-048

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Prep Method: E300P

% Moisture:

Date Prep: 07.21.17 16.30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1980	24.7	mg/kg	07.22.17 02.19		5

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Prep Method: TX1005P

% Moisture:

Date Prep: 07.19.17 14.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	328	15.0	mg/kg	07.19.17 20.27		1
Diesel Range Organics (DRO)	C10C28DRO	1530	15.0	mg/kg	07.19.17 20.27		1
Oil Range Hydrocarbons (ORO)	PHCG2835	359	15.0	mg/kg	07.19.17 20.27		1
Total TPH	PHC635	2220	15.0	mg/kg	07.19.17 20.27		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	07.19.17 20.27	
o-Terphenyl	84-15-1	88	%	70-135	07.19.17 20.27	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-Surf**
Lab Sample Id: 557797-048

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.24.17 14.54	U	1
Toluene	108-88-3	0.00768	0.00201	mg/kg	07.24.17 14.54		1
Ethylbenzene	100-41-4	0.0734	0.00201	mg/kg	07.24.17 14.54		1
m,p-Xylenes	179601-23-1	0.292	0.00402	mg/kg	07.24.17 14.54		1
o-Xylene	95-47-6	0.169	0.00201	mg/kg	07.24.17 14.54		1
Total Xylenes	1330-20-7	0.461	0.00201	mg/kg	07.24.17 14.54		1
Total BTEX		0.542	0.00201	mg/kg	07.24.17 14.54		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	80-120	07.24.17 14.54		
1,4-Difluorobenzene	540-36-3	91	%	80-120	07.24.17 14.54		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-1'**
Lab Sample Id: 557797-049

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2360	23.3	mg/kg	07.22.17 02.27		5

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	19.0	15.0	mg/kg	07.19.17 20.49		1
Diesel Range Organics (DRO)	C10C28DRO	353	15.0	mg/kg	07.19.17 20.49		1
Oil Range Hydrocarbons (ORO)	PHCG2835	45.3	15.0	mg/kg	07.19.17 20.49		1
Total TPH	PHC635	417	15.0	mg/kg	07.19.17 20.49		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	07.19.17 20.49		
o-Terphenyl	84-15-1	101	%	70-135	07.19.17 20.49		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-1'**
Lab Sample Id: 557797-049

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.24.17 13.19	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.24.17 13.19	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.24.17 13.19	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.24.17 13.19	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.24.17 13.19	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.24.17 13.19	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.24.17 13.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	80-120	07.24.17 13.19		
4-Bromofluorobenzene	460-00-4	84	%	80-120	07.24.17 13.19		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-2'**
Lab Sample Id: 557797-050

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	229	4.98	mg/kg	07.22.17 02.34		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 21.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 21.10	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 21.10	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 21.10	U	1

Surrogate

1-Chlorooctane

o-Terphenyl

Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
111-85-3	102	%	70-135	07.19.17 21.10	
84-15-1	110	%	70-135	07.19.17 21.10	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-2'**
Lab Sample Id: 557797-050

Matrix: Soil
Date Collected: 07.12.17 11.30

Date Received: 07.17.17 11.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.24.17 15.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.24.17 15.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.24.17 15.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.24.17 15.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.24.17 15.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.24.17 15.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.24.17 15.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	07.24.17 15.39		
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.24.17 15.39		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-3'**
Lab Sample Id: 557797-051

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.4	4.82	mg/kg	07.22.17 02.42		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 21.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	07.19.17 21.31	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 21.31	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	07.19.17 21.31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	07.19.17 21.31	
o-Terphenyl	84-15-1	109	%	70-135	07.19.17 21.31	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-3'**
Lab Sample Id: 557797-051

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.24.17 15.59	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.24.17 15.59	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.24.17 15.59	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	07.24.17 15.59	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.24.17 15.59	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.24.17 15.59	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.24.17 15.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	07.24.17 15.59		
1,4-Difluorobenzene	540-36-3	97	%	80-120	07.24.17 15.59		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-4'**
Lab Sample Id: 557797-052

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.20	4.94	mg/kg	07.22.17 03.05		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.19.17 21.53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	07.19.17 21.53	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	07.19.17 21.53	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	07.19.17 21.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	100	%	70-135	07.19.17 21.53		
o-Terphenyl	84-15-1	108	%	70-135	07.19.17 21.53		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-4'**
Lab Sample Id: 557797-052

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.24.17 16.18	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.24.17 16.18	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.24.17 16.18	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.24.17 16.18	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.24.17 16.18	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.24.17 16.18	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.24.17 16.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	80-120	07.24.17 16.18		
1,4-Difluorobenzene	540-36-3	98	%	80-120	07.24.17 16.18		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-6'**
Lab Sample Id: 557797-053

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.3	5.01	mg/kg	07.22.17 03.13		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	07.19.17 22.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	07.19.17 22.14	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	07.19.17 22.14	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	07.19.17 22.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	100	%	70-135	07.19.17 22.14		
o-Terphenyl	84-15-1	107	%	70-135	07.19.17 22.14		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-6'**
Lab Sample Id: 557797-053

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.24.17 13.01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.24.17 13.01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.24.17 13.01	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.24.17 13.01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.24.17 13.01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.24.17 13.01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.24.17 13.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	80-120	07.24.17 13.01		
1,4-Difluorobenzene	540-36-3	95	%	80-120	07.24.17 13.01		



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-8'**
Lab Sample Id: 557797-054

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: Inorganic Anions by EPA 300/300.1

Tech: MGO

Analyst: MGO

Seq Number: 3023088

Date Prep: 07.21.17 16.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	45.0	5.02	mg/kg	07.22.17 03.36		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3022909

Date Prep: 07.19.17 14.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	07.19.17 23.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	69.3	15.0	mg/kg	07.19.17 23.17		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	07.19.17 23.17	U	1
Total TPH	PHC635	69.3	15.0	mg/kg	07.19.17 23.17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	07.19.17 23.17	
o-Terphenyl	84-15-1	122	%	70-135	07.19.17 23.17	



Certificate of Analytical Results 557797



COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **T8-8'**
Lab Sample Id: 557797-054

Matrix: Soil
Date Collected: 07.12.17 11.45

Date Received: 07.17.17 11.45
Sample Depth: 8 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 07.24.17 08.00

Basis: Wet Weight

Seq Number: 3023055

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.24.17 14.35	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.24.17 14.35	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.24.17 14.35	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.24.17 14.35	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.24.17 14.35	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.24.17 14.35	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.24.17 14.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	80-120	07.24.17 14.35		
1,4-Difluorobenzene	540-36-3	94	%	80-120	07.24.17 14.35		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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COG Operating LLC
Momentum 36 State #001

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023079

Matrix: Solid

Prep Method: E300P

MB Sample Id: 728001-1-BLK

LCS Sample Id: 728001-1-BKS

Date Prep: 07.21.17

LCSD Sample Id: 728001-1-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	258	103	268	107	90-110	4	20	mg/kg	07.21.17 16:01	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023083

Matrix: Solid

Prep Method: E300P

MB Sample Id: 728015-1-BLK

LCS Sample Id: 728015-1-BKS

Date Prep: 07.21.17

LCSD Sample Id: 728015-1-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	258	103	257	103	90-110	0	20	mg/kg	07.21.17 20:26	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023088

Matrix: Solid

Prep Method: E300P

MB Sample Id: 728016-1-BLK

LCS Sample Id: 728016-1-BKS

Date Prep: 07.21.17

LCSD Sample Id: 728016-1-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	270	108	262	105	90-110	3	20	mg/kg	07.22.17 00:39	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023079

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 557797-001

MS Sample Id: 557797-001 S

Date Prep: 07.21.17

MSD Sample Id: 557797-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	74.7	241	329	106	328	105	90-110	0	20	mg/kg	07.21.17 16:24	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023079

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 557797-011

MS Sample Id: 557797-011 S

Date Prep: 07.21.17

MSD Sample Id: 557797-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7.85	243	272	109	263	105	90-110	3	20	mg/kg	07.21.17 18:23	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023083

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 557797-021

MS Sample Id: 557797-021 S

Date Prep: 07.21.17

MSD Sample Id: 557797-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	133	244	403	111	396	108	90-110	2	20	mg/kg	07.21.17 20:49	X

COG Operating LLC
Momentum 36 State #001**Analytical Method: Inorganic Anions by EPA 300/300.1**

Seq Number: 3023083

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 557797-031

MS Sample Id: 557797-031 S

Date Prep: 07.21.17

MSD Sample Id: 557797-031 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.5	240	261	104	268	107	90-110	3	20	mg/kg	07.21.17 22:36	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023088

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 557797-042

MS Sample Id: 557797-042 S

Date Prep: 07.21.17

MSD Sample Id: 557797-042 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	337	250	588	100	595	103	90-110	1	20	mg/kg	07.22.17 01:02	

Analytical Method: Inorganic Anions by EPA 300/300.1

Seq Number: 3023088

Matrix: Soil

Prep Method: E300P

Parent Sample Id: 557797-051

MS Sample Id: 557797-051 S

Date Prep: 07.21.17

MSD Sample Id: 557797-051 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	19.4	241	271	104	270	104	90-110	0	20	mg/kg	07.22.17 02:50	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3022605

Matrix: Solid

Prep Method: TX1005P

MB Sample Id: 727857-1-BLK

LCS Sample Id: 727857-1-BKS

Date Prep: 07.18.17

LCSD Sample Id: 727857-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1020	102	1050	105	70-135	3	35	mg/kg	07.18.17 16:24	
Diesel Range Organics (DRO)	<15.0	1000	1050	105	1050	105	70-135	0	35	mg/kg	07.18.17 16:24	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		114		112		70-135	%	07.18.17 16:24
o-Terphenyl	114		115		117		70-135	%	07.18.17 16:24



COG Operating LLC

Momentum 36 State #001

Analytical Method: TPH By SW8015 Mod

Seq Number: 3022606

MB Sample Id: 727859-1-BLK

Matrix: Solid

LCS Sample Id: 727859-1-BKS

Prep Method: TX1005P

Date Prep: 07.18.17

LCSD Sample Id: 727859-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	984	98	1090	109	70-135	10	35	mg/kg	07.19.17 02:23	
Diesel Range Organics (DRO)	<15.0	1000	1030	103	1080	108	70-135	5	35	mg/kg	07.19.17 02:23	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	115		114		121		70-135	%	07.19.17 02:23			
o-Terphenyl	122		116		122		70-135	%	07.19.17 02:23			

Analytical Method: TPH By SW8015 Mod

Seq Number: 3022909

MB Sample Id: 727920-1-BLK

Matrix: Solid

LCS Sample Id: 727920-1-BKS

Prep Method: TX1005P

Date Prep: 07.19.17

LCSD Sample Id: 727920-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1120	112	1070	107	70-135	5	35	mg/kg	07.19.17 16:17	
Diesel Range Organics (DRO)	<15.0	1000	1120	112	1060	106	70-135	6	35	mg/kg	07.19.17 16:17	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	107		122		117		70-135	%	07.19.17 16:17			
o-Terphenyl	115		123		122		70-135	%	07.19.17 16:17			

Analytical Method: TPH By SW8015 Mod

Seq Number: 3022605

Parent Sample Id: 557797-004

Matrix: Soil

MS Sample Id: 557797-004 S

Prep Method: TX1005P

Date Prep: 07.18.17

MSD Sample Id: 557797-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	998	1120	112	1160	116	70-135	4	35	mg/kg	07.18.17 18:44	
Diesel Range Organics (DRO)	<15.0	998	1140	114	1170	117	70-135	3	35	mg/kg	07.18.17 18:44	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			110		116		70-135	%	07.18.17 18:44			
o-Terphenyl			111		120		70-135	%	07.18.17 18:44			



QC Summary 557797

COG Operating LLC

Momentum 36 State #001

Analytical Method: TPH By SW8015 Mod

Seq Number: 3022606

Parent Sample Id: 557797-022

Matrix: Soil

MS Sample Id: 557797-022 S

Prep Method: TX1005P

Date Prep: 07.18.17

MSD Sample Id: 557797-022 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	22.8	998	1110	109	1110	109	70-135	0	35	mg/kg	07.19.17 03:23	
Diesel Range Organics (DRO)	88.5	998	1120	103	1150	106	70-135	3	35	mg/kg	07.19.17 03:23	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		109		70-135	%	07.19.17 03:23
o-Terphenyl	104		103		70-135	%	07.19.17 03:23

Analytical Method: TPH By SW8015 Mod

Seq Number: 3022909

Parent Sample Id: 557797-044

Matrix: Soil

MS Sample Id: 557797-044 S

Prep Method: TX1005P

Date Prep: 07.19.17

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	Limits	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1080	108	70-135	mg/kg	07.19.17 18:33	
Diesel Range Organics (DRO)	<15.0	1000	1110	111	70-135	mg/kg	07.19.17 18:33	

Surrogate

	MS %Rec	MS Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		70-135	%	07.19.17 18:33
o-Terphenyl	107		70-135	%	07.19.17 18:33

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022826

MB Sample Id: 727982-1-BLK

Matrix: Solid

LCS Sample Id: 727982-1-BKS

Prep Method: SW5030B

Date Prep: 07.20.17

LCSD Sample Id: 727982-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.113	112	0.112	112	70-130	1	35	mg/kg	07.20.17 19:34	
Toluene	<0.00202	0.101	0.115	114	0.114	114	70-130	1	35	mg/kg	07.20.17 19:34	
Ethylbenzene	<0.00202	0.101	0.120	119	0.119	119	71-129	1	35	mg/kg	07.20.17 19:34	
m,p-Xylenes	<0.00404	0.202	0.237	117	0.234	116	70-135	1	35	mg/kg	07.20.17 19:34	
o-Xylene	<0.00202	0.101	0.120	119	0.119	119	71-133	1	35	mg/kg	07.20.17 19:34	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		94		93		80-120	%	07.20.17 19:34
4-Bromofluorobenzene	105		109		109		80-120	%	07.20.17 19:34

COG Operating LLC
Momentum 36 State #001

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022985

MB Sample Id: 728055-1-BLK

Matrix: Solid

LCS Sample Id: 728055-1-BKS

Prep Method: SW5030B

Date Prep: 07.21.17

LCSD Sample Id: 728055-1-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	0.113	113	0.113	112	70-130	0	35	mg/kg	07.21.17 07:54	
Toluene	<0.00200	0.100	0.113	113	0.114	113	70-130	1	35	mg/kg	07.21.17 07:54	
Ethylbenzene	<0.00200	0.100	0.120	120	0.120	119	71-129	0	35	mg/kg	07.21.17 07:54	
m,p-Xylenes	<0.00401	0.200	0.234	117	0.233	116	70-135	0	35	mg/kg	07.21.17 07:54	
o-Xylene	<0.00200	0.100	0.117	117	0.117	116	71-133	0	35	mg/kg	07.21.17 07:54	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	97		91		101		80-120			%	07.21.17 07:54	
4-Bromofluorobenzene	108		100		113		80-120			%	07.21.17 07:54	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022986

MB Sample Id: 728057-1-BLK

Matrix: Solid

LCS Sample Id: 728057-1-BKS

Prep Method: SW5030B

Date Prep: 07.21.17

LCSD Sample Id: 728057-1-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	0.108	108	0.111	111	70-130	3	35	mg/kg	07.21.17 17:48	
Toluene	<0.00200	0.100	0.110	110	0.113	113	70-130	3	35	mg/kg	07.21.17 17:48	
Ethylbenzene	<0.00200	0.100	0.118	118	0.120	120	71-129	2	35	mg/kg	07.21.17 17:48	
m,p-Xylenes	<0.00401	0.200	0.231	116	0.235	118	70-135	2	35	mg/kg	07.21.17 17:48	
o-Xylene	<0.00200	0.100	0.118	118	0.120	120	71-133	2	35	mg/kg	07.21.17 17:48	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	95		100		102		80-120			%	07.21.17 17:48	
4-Bromofluorobenzene	112		119		118		80-120			%	07.21.17 17:48	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022988

MB Sample Id: 728062-1-BLK

Matrix: Solid

LCS Sample Id: 728062-1-BKS

Prep Method: SW5030B

Date Prep: 07.21.17

LCSD Sample Id: 728062-1-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	0.111	111	0.119	119	70-130	7	35	mg/kg	07.22.17 03:09	
Toluene	<0.00200	0.100	0.113	113	0.122	122	70-130	8	35	mg/kg	07.22.17 03:09	
Ethylbenzene	<0.00200	0.100	0.121	121	0.118	118	71-129	3	35	mg/kg	07.22.17 03:09	
m,p-Xylenes	<0.00401	0.200	0.236	118	0.243	122	70-135	3	35	mg/kg	07.22.17 03:09	
o-Xylene	<0.00200	0.100	0.121	121	0.121	121	71-133	0	35	mg/kg	07.22.17 03:09	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	94		99		99		80-120			%	07.22.17 03:09	
4-Bromofluorobenzene	109		115		117		80-120			%	07.22.17 03:09	

COG Operating LLC
Momentum 36 State #001

Analytical Method: BTEX by EPA 8021B

Seq Number: 3023055

MB Sample Id: 728128-1-BLK

Matrix: Solid

LCS Sample Id: 728128-1-BKS

Prep Method: SW5030B

Date Prep: 07.24.17

LCSD Sample Id: 728128-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.113	112	0.112	112	70-130	1	35	mg/kg	07.24.17 08:39	
Toluene	<0.00201	0.101	0.114	113	0.114	114	70-130	0	35	mg/kg	07.24.17 08:39	
Ethylbenzene	<0.00201	0.101	0.119	118	0.120	120	71-129	1	35	mg/kg	07.24.17 08:39	
m,p-Xylenes	<0.00402	0.201	0.232	115	0.232	115	70-135	0	35	mg/kg	07.24.17 08:39	
o-Xylene	<0.00201	0.101	0.116	115	0.116	116	71-133	0	35	mg/kg	07.24.17 08:39	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	98		102		101		80-120			%	07.24.17 08:39	
4-Bromofluorobenzene	112		112		112		80-120			%	07.24.17 08:39	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3023231

MB Sample Id: 728221-1-BLK

Matrix: Solid

LCS Sample Id: 728221-1-BKS

Prep Method: SW5030B

Date Prep: 07.25.17

LCSD Sample Id: 728221-1-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	0.112	112	0.114	114	70-130	2	35	mg/kg	07.25.17 09:24	
Toluene	<0.00200	0.0998	0.115	115	0.116	116	70-130	1	35	mg/kg	07.25.17 09:24	
Ethylbenzene	<0.00200	0.0998	0.121	121	0.123	123	71-129	2	35	mg/kg	07.25.17 09:24	
m,p-Xylenes	<0.00399	0.200	0.235	118	0.239	119	70-135	2	35	mg/kg	07.25.17 09:24	
o-Xylene	<0.00200	0.0998	0.120	120	0.124	124	71-133	3	35	mg/kg	07.25.17 09:24	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	101		89		95		80-120			%	07.25.17 09:24	
4-Bromofluorobenzene	107		101		113		80-120			%	07.25.17 09:24	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022826

Parent Sample Id: 557801-020

Matrix: Soil

MS Sample Id: 557801-020 S

Prep Method: SW5030B

Date Prep: 07.20.17

MSD Sample Id: 557801-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.0792	80	0.0879	88	70-130	10	35	mg/kg	07.20.17 20:12	
Toluene	<0.00198	0.0992	0.0785	79	0.0888	89	70-130	12	35	mg/kg	07.20.17 20:12	
Ethylbenzene	<0.00198	0.0992	0.0912	92	0.0947	95	71-129	4	35	mg/kg	07.20.17 20:12	
m,p-Xylenes	<0.00397	0.198	0.183	92	0.187	94	70-135	2	35	mg/kg	07.20.17 20:12	
o-Xylene	<0.00198	0.0992	0.0969	98	0.0963	96	71-133	1	35	mg/kg	07.20.17 20:12	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene			113		104		80-120			%	07.20.17 20:12	
4-Bromofluorobenzene			114		118		80-120			%	07.20.17 20:12	

COG Operating LLC
Momentum 36 State #001

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022985

Parent Sample Id: 557797-024

Matrix: Soil

MS Sample Id: 557797-024 S

Prep Method: SW5030B

Date Prep: 07.21.17

MSD Sample Id: 557797-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0923	92	0.113	113	70-130	20	35	mg/kg	07.21.17 08:32	
Toluene	<0.00201	0.100	0.0903	90	0.112	112	70-130	21	35	mg/kg	07.21.17 08:32	
Ethylbenzene	<0.00201	0.100	0.0939	94	0.117	117	71-129	22	35	mg/kg	07.21.17 08:32	
m,p-Xylenes	<0.00402	0.201	0.183	91	0.227	114	70-135	21	35	mg/kg	07.21.17 08:32	
o-Xylene	<0.00201	0.100	0.0938	94	0.114	114	71-133	19	35	mg/kg	07.21.17 08:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		102		80-120	%	07.21.17 08:32
4-Bromofluorobenzene	118		113		80-120	%	07.21.17 08:32

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022986

Parent Sample Id: 557797-046

Matrix: Soil

MS Sample Id: 557797-046 S

Prep Method: SW5030B

Date Prep: 07.21.17

MSD Sample Id: 557797-046 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0835	84	0.0894	89	70-130	7	35	mg/kg	07.21.17 18:25	
Toluene	<0.00201	0.100	0.0841	84	0.0907	91	70-130	8	35	mg/kg	07.21.17 18:25	
Ethylbenzene	<0.00201	0.100	0.0887	89	0.0949	95	71-129	7	35	mg/kg	07.21.17 18:25	
m,p-Xylenes	<0.00402	0.201	0.173	86	0.185	93	70-135	7	35	mg/kg	07.21.17 18:25	
o-Xylene	<0.00201	0.100	0.0883	88	0.0944	94	71-133	7	35	mg/kg	07.21.17 18:25	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		101		80-120	%	07.21.17 18:25
4-Bromofluorobenzene	120		118		80-120	%	07.21.17 18:25

Analytical Method: BTEX by EPA 8021B

Seq Number: 3022988

Parent Sample Id: 557797-026

Matrix: Soil

MS Sample Id: 557797-026 S

Prep Method: SW5030B

Date Prep: 07.21.17

MSD Sample Id: 557797-026 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.111	111	0.107	107	70-130	4	35	mg/kg	07.22.17 03:46	
Toluene	<0.00201	0.100	0.113	113	0.108	108	70-130	5	35	mg/kg	07.22.17 03:46	
Ethylbenzene	<0.00201	0.100	0.117	117	0.112	112	71-129	4	35	mg/kg	07.22.17 03:46	
m,p-Xylenes	<0.00402	0.201	0.227	113	0.218	110	70-135	4	35	mg/kg	07.22.17 03:46	
o-Xylene	<0.00201	0.100	0.116	116	0.110	110	71-133	5	35	mg/kg	07.22.17 03:46	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		103		80-120	%	07.22.17 03:46
4-Bromofluorobenzene	117		119		80-120	%	07.22.17 03:46

COG Operating LLC
Momentum 36 State #001

Analytical Method: BTEX by EPA 8021B

Seq Number: 3023055

Parent Sample Id: 557801-024

Matrix: Soil

MS Sample Id: 557801-024 S

Prep Method: SW5030B

Date Prep: 07.24.17

MSD Sample Id: 557801-024 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	0.0867	86	0.0749	75	70-130	15	35	mg/kg	07.24.17 09:16	
Toluene	<0.00202	0.101	0.0878	87	0.0762	76	70-130	14	35	mg/kg	07.24.17 09:16	
Ethylbenzene	<0.00202	0.101	0.0914	90	0.0782	78	71-129	16	35	mg/kg	07.24.17 09:16	
m,p-Xylenes	<0.00404	0.202	0.178	88	0.152	76	70-135	16	35	mg/kg	07.24.17 09:16	
o-Xylene	<0.00202	0.101	0.0904	90	0.0772	77	71-133	16	35	mg/kg	07.24.17 09:16	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		103		80-120	%	07.24.17 09:16
4-Bromofluorobenzene	118		120		80-120	%	07.24.17 09:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3023231

Parent Sample Id: 558118-001

Matrix: Soil

MS Sample Id: 558118-001 S

Prep Method: SW5030B

Date Prep: 07.25.17

MSD Sample Id: 558118-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0767	77	0.0909	91	70-130	17	35	mg/kg	07.25.17 10:01	
Toluene	<0.00199	0.0996	0.0783	79	0.0902	90	70-130	14	35	mg/kg	07.25.17 10:01	
Ethylbenzene	<0.00199	0.0996	0.0809	81	0.0906	91	71-129	11	35	mg/kg	07.25.17 10:01	
m,p-Xylenes	<0.00398	0.199	0.157	79	0.173	87	70-135	10	35	mg/kg	07.25.17 10:01	
o-Xylene	<0.00199	0.0996	0.0820	82	0.0865	87	71-133	5	35	mg/kg	07.25.17 10:01	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		102		80-120	%	07.25.17 10:01
4-Bromofluorobenzene	115		120		80-120	%	07.25.17 10:01

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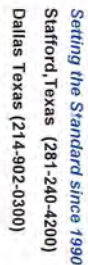
Xenco Job #

557797

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: COG Operating LLC				Project Name/Number: Momentum 36 State #001														
Company Address: 2407 PECOS Avenue Artesia NM 88210				Project Location: Momentum 36 State														
Email: aileb@concho.com dneel2@concho.com thaskel@concho.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	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments
1	T3-3'	3	7-12-17	10:00	5	1									X	X	X	
2	T2-4'	4			1										X	X	X	
3	T2-6'	6			1										X	X	X	
4	T2-9'	9			1										X	X	X	
5	T3-5'EF	1			1										X	X	X	
6	T3-1'	1			1										X	X	X	
7	T3-2'	2			1										X	X	X	
8	T3-3'	3			1										X	X	X	
9	T3-4'	4			1										X	X	X	
10	T3-6'	6			1										X	X	X	
Turnaround Time (Business days)																		
Data Deliverable Information																		
F																		
Temp: 1.4 IR ID: R-8																		
CF: (0-6: -0.2°C)																		
(6-23: +0.2°C)																		
Corrected Temp: 1.2																		
TAT Starts Day received by Lab, if received by 5:00 pm																		
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																		
FED-EX / UPS: Tracking #																		
Relinquished by Sampler:																		
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W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW = Ocean/Sea Water
WI = Wipe
O = Oil
WW = Waste Water
A = Air

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Phoenix, Arizona (480-355-0900)

557797

Client / Reporting Information						Project Information						Analytical Information						Matrix Codes							
Company Name / Branch: COG Operating LLC Company Address: 2407 PECOS AVENUE Artesia NM 88210						Project Name/Number: Momentum 36 State #001 Project Location: Momentum 36 Stat.						Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Midland TX 79701													
Email: aalieb@concho.com Phone No: 575-748-1553 dnee12@concho.com haskell@concho.com						PO Number:																			
Project Contact: Aaron Lieb						Sampler's Name: Aaron Lieb																			
No.	Field ID / Point of Collection	Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments						
1	T4-Suct-		-	7/12/17	10:30 AM	S	1									X	X	X							
2	T4-1'		1				1									X	X	X							
3	T4-2'		2				1									X	X	X							
4	T4-3'		3				1									X	X	X							
5	T4-4'		4				1									X	X	X							
6	T4-5'		5				1									X	X	X							
7	T5-Suct-		-				1									X	X	X							
8	T5-1'		1				1									X	X	X							
9	T5-2'		2				1									X	X	X							
10	T5-3'		3				1									X	X	X							
Turnaround Time (Business days)																				Data Deliverable Information				Nc	
☐ 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 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																				FED-EX / UPS: Tracking #					
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																									
Relinquished by Sampler:										Received By:															
Date Time:										Date Time:															
Relinquished by:										Received By:															
Date Time:										Date Time:															
Relinquished by:										Received By:															
Date Time:										Date Time:															
Custody Seal #										Preserved where applicable															
On Ice										Cooler Temp:															
Thermo/ Corr. Factor																									

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Dallas Texas (214-902-0300)

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Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

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Client / Reporting Information				Project Information				Xenco Quote #		Xenco Job #		Matrix Codes						
Company Name / Branch: COG Operating LLC				Project Name/Number: Momentum 36 State #001				Xenco Quote #		Xenco Job #		Matrix Codes						
Company Address: 2407 PECOS Avenue Artesia NM 88210				Project Location: Momentum 36 Stat														
Email: alleh@concho.com Phone No: 575-748-1553 dneelz@concho.com thaskell@concho.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	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments
1	T5-4	4	7/12/17	11:00am	5	1									X	X	X	
2	T5-8	2				1									X	X	X	
3	T5-8	2				1									X	X	X	
4	T6-Surf	1				1									X	X	X	
5	T6-1	1				1									X	X	X	
6	T6-2	2				1									X	X	X	
7	T6-3	3				1									X	X	X	
8	T6-4	4				1									X	X	X	
9	T6-6	6				1									X	X	X	
10	T6-8	8				1									X	X	X	
Turnaround Time (Business days)																		
Data Deliverable Information																		
Not																		
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 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 COURIER DELIVERY																		
FED-EX / UPS: Tracking #																		
Relinquished by Sampler: 1 Date Time: 7-17-17 Received By: 2 Date Time: 7-17-17																		
Relinquished by: 3 Date Time: 7-17-17 Received By: 4 Date Time: 7-17-17																		
Relinquished by: 5 Date Time: 7-17-17 Received By: 6 Date Time: 7-17-17																		
Custody Seal # 4																		
Preserved where applicable: 5																		
Temp: 1.4 IR ID: R-8																		
CF: (0-6: -0.2°C) (6-23: +0.2°C)																		
Corrected Temp: 1.2																		

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



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

CHAIN OF CUSTODY

Page 5 of 6

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

Phoenix, Arizona (480-355-0900)

www.xenco.com

Xenco Quote #

Xenco Job #

557797

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: COG Operating LLC				Project Name/Number: Momentum 36 State #001														
Company Address: 2407 PECOS Avenue Artesia NM 88210				Project Location: Momentum 36 State														
Email: aliebd@concho.com Phone No: 575-748-1553 dneel2@concho.com rhaskell@concho.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	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments
1	IT7-Surf	1	7/17/17	11:30a	5	1									X	X	X	
2	IT7-2'	2				1									X	X	X	
3	IT7-3'	3				1									X	X	X	
4	IT7-4'	4				1									X	X	X	
5	IT7-6'	6				1									X	X	X	
6	IT7-12'	12				1									X	X	X	
7	IT7-Surf	1				1									X	X	X	
8	IT8-1'	1				1									X	X	X	
9	IT8-2'	2				1									X	X	X	
10																		
Turnaround Time (Business days)																		
Data Deliverable Information																		
No																		
Temp: 1.4 IFR ID: R-8																		
CF: (0-6: -0.2°C)																		
(6-23: +0.2°C)																		
Corrected Temp: 1.2																		
TAT Starts Day received by Lab, if received by 5:00 pm																		
FED-EX / UPS: Tracking #																		
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																		
Relinquished by Sampler:																		
Date Time: 1 Received By: 1																		
Relinquished By: 2 Date Time: 2																		
Relinquished By: 3 Date Time: 3																		
Relinquished By: 4 Date Time: 4																		
Relinquished By: 5 Date Time: 5																		
Custody Seal #																		
Preserved where applicable																		
Cooler Temp. 5.5°C																		
Thermo. Corr. Factor																		

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CHAIN OF CUSTODY

Page 6 of 6

San Antonio, Texas (210-509-3344)
Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

www.xenoco.com

Xenoco Quote #

Xenoco Job #

557797

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes							
Company Name / Branch: COG Operating LLC				Project Name/Number: Momentum 36 State #001															
Company Address: 2407 PECOS Avenue Artesia NM 88210				Project Location: Momentum 36 State															
Email: alieb@concho.com dneelz@concho.com thaskell@concho.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	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	TPH/ EXTENDED	BTEX	Chloride	Field Comments	
1	T8-3	3	7/12/17	11:45am	S	1									X	X	X		
2	T8-4	4				1									X	X	X		
3	T8-6	6				1									X	X	X		
4	T8-8	8				1									X	X	X		
5																			
6																			
7																			
8																			
9																			
10																			
Turnaround Time (Business days)																			
☐ Same Day TAT		☐ 5 Day TAT																Temp: 1.4 IR ID: R-8	
☐ Next Day EMERGENCY		☐ 7 Day TAT																CF: (-0.6: -0.2°C) (6-23: +0.2°C)	
☐ 2 Day EMERGENCY		☐ Contract TAT																Corrected Temp: 1.2	
☐ 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 COURIER DELIVERY																			
Relinquished by Sampler:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:	
1				1				2				2				2			
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:	
3		7-17-17 10:00am		3		7-17-17 10:00am		4		7-17-17 11:45am		4		7-17-17 11:45am		4		7-17-17 11:45am	
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:	
5				5				5				5				5			

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 07/17/2017 11:45:00 AM

Work Order #: 557797

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	Yes
#5 *Custody Seals intact on shipping container/ cooler?	Yes
#6 Custody Seals intact on sample bottles?	Yes
#7 *Custody Seals Signed and dated?	Yes
#8 *Chain of Custody present?	Yes
#9 Sample instructions complete on Chain of Custody?	Yes
#10 Any missing/extra samples?	Yes
#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)?	No
#21 VOC samples have zero headspace?	N/A

Extra Sampe NOT on COC T2-8'

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Shawnee Smith

Date: 07/18/2017

Checklist reviewed by:

Kelsey Brooks

Date: 07/18/2017

APPENDIX VI



Certificate of Analysis Summary 584484

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 SWD #001



Project Id:

Contact: Dakota Neel

Project Location:

Date Received in Lab: Wed May-02-18 09:00 am

Report Date: 07-MAY-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	584484-001	584484-002	584484-003	584484-004	584484-005	584484-006
	Field Id:	SW-6	SW-5	SW-4	SW-3	SW-2	SW-1
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Apr-27-18 10:30	Apr-27-18 10:30	Apr-27-18 10:30	Apr-27-18 10:30	Apr-27-18 10:30	Apr-27-18 10:30
BTEX by EPA 8021B	Extracted:	May-05-18 07:35	May-05-18 07:35	May-05-18 07:35	May-05-18 07:35	May-05-18 07:35	May-05-18 07:35
	Analyzed:	May-05-18 12:50	May-05-18 13:12	May-05-18 13:33	May-05-18 14:36	May-05-18 14:58	May-05-18 15:19
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00198 0.00198
Toluene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00198 0.00198
Ethylbenzene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00198 0.00198
m,p-Xylenes		<0.00398 0.00398	<0.00403 0.00403	<0.00401 0.00401	<0.00402 0.00402	<0.00402 0.00402	<0.00397 0.00397
o-Xylene		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00198 0.00198
Total Xylenes		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00198 0.00198
Total BTEX		<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00198 0.00198
Chloride by EPA 300	Extracted:	May-02-18 13:00	May-02-18 13:00	May-02-18 13:00	May-02-18 13:00	May-02-18 15:00	May-02-18 15:00
	Analyzed:	May-02-18 19:10	May-02-18 19:16	May-02-18 19:22	May-02-18 19:28	May-03-18 14:14	May-03-18 14:32
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		371 5.00	58.7 4.95	1120 24.8	24.3 4.95	510 5.00	93.1 4.97
TPH By SW8015 Mod	Extracted:	May-03-18 09:00	May-03-18 09:00	May-03-18 09:00	May-03-18 09:00	May-03-18 09:00	May-03-18 09:00
	Analyzed:	May-03-18 13:25	May-03-18 14:49	May-03-18 15:17	May-03-18 15:45	May-03-18 16:14	May-03-18 16:41
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9
Diesel Range Organics (DRO)		53.8 15.0	49.1 15.0	1310 15.0	<15.0 15.0	51.9 14.9	<14.9 14.9
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	84.5 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9
Total TPH		53.8 15.0	49.1 15.0	1390 15.0	<15.0 15.0	51.9 14.9	<14.9 14.9

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 584484

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 SWD #001



Project Id:

Contact: Dakota Neel

Project Location:

Date Received in Lab: Wed May-02-18 09:00 am

Report Date: 07-MAY-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	584484-007	584484-008				
	Field Id:	BTM-1	BTM-2				
	Depth:	1-	1-				
	Matrix:	SOIL	SOIL				
	Sampled:	Apr-27-18 10:30	Apr-27-18 10:30				
BTEX by EPA 8021B	Extracted:	May-05-18 07:35	May-05-18 07:35				
	Analyzed:	May-05-18 15:41	May-05-18 16:03				
	Units/RL:	mg/kg RL	mg/kg RL				
	Benzene	<0.00200 0.00200	<0.00201 0.00201				
	Toluene	<0.00200 0.00200	<0.00201 0.00201				
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201				
m,p-Xylenes		<0.00399 0.00399	<0.00402 0.00402				
o-Xylene		<0.00200 0.00200	<0.00201 0.00201				
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201				
Total BTEX		<0.00200 0.00200	<0.00201 0.00201				
Chloride by EPA 300	Extracted:	May-02-18 15:00	May-02-18 15:00				
	Analyzed:	May-03-18 14:38	May-03-18 14:44				
	Units/RL:	mg/kg RL	mg/kg RL				
	Chloride	121 5.00	17.7 4.95				
TPH By SW8015 Mod	Extracted:	May-03-18 09:00	May-03-18 09:00				
	Analyzed:	May-03-18 17:09	May-03-18 17:37				
	Units/RL:	mg/kg RL	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0	<15.0 15.0				
	Diesel Range Organics (DRO)	<15.0 15.0	<15.0 15.0				
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0				
Total TPH		<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

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 584484

for
COG Operating LLC

Project Manager: Dakota Neel

Momentum 36 SWD #001

07-MAY-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-25), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



07-MAY-18

Project Manager: **Dakota Neel**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **584484**

Momentum 36 SWD #001

Project Address:

Dakota Neel:

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) 584484. 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. 584484 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Project Assistant

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Sample Cross Reference 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-6	S	04-27-18 10:30		584484-001
SW-5	S	04-27-18 10:30		584484-002
SW-4	S	04-27-18 10:30		584484-003
SW-3	S	04-27-18 10:30		584484-004
SW-2	S	04-27-18 10:30		584484-005
SW-1	S	04-27-18 10:30		584484-006
BTM-1	S	04-27-18 10:30	1	584484-007
BTM-2	S	04-27-18 10:30	1	584484-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Momentum 36 SWD #001

Project ID:

Work Order Number(s): 584484

Report Date: 07-MAY-18

Date Received: 05/02/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3049162 BTEX by EPA 8021B

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



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-6**
Lab Sample Id: 584484-001

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3048766

Prep Method: E300P

% Moisture:

Date Prep: 05.02.18 13.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	371	5.00	mg/kg	05.02.18 19.10		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048989

Prep Method: TX1005P

% Moisture:

Date Prep: 05.03.18 09.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.03.18 13.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	53.8	15.0	mg/kg	05.03.18 13.25		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.03.18 13.25	U	1
Total TPH	PHC635	53.8	15.0	mg/kg	05.03.18 13.25		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	87	%	70-135	05.03.18 13.25		
o-Terphenyl	84-15-1	82	%	70-135	05.03.18 13.25		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-6**
Lab Sample Id: 584484-001

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.05.18 12.50	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.05.18 12.50	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.05.18 12.50	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.05.18 12.50	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.05.18 12.50	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.05.18 12.50	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.05.18 12.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	05.05.18 12.50		
1,4-Difluorobenzene	540-36-3	94	%	70-130	05.05.18 12.50		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: SW-5
Lab Sample Id: 584484-002

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3048766

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 05.02.18 13.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	58.7	4.95	mg/kg	05.02.18 19.16		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048989

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 05.03.18 09.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.03.18 14.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	49.1	15.0	mg/kg	05.03.18 14.49		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.03.18 14.49	U	1
Total TPH	PHC635	49.1	15.0	mg/kg	05.03.18 14.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	05.03.18 14.49	
o-Terphenyl	84-15-1	83	%	70-135	05.03.18 14.49	



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-5**
Lab Sample Id: 584484-002

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.05.18 13.12	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.05.18 13.12	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.05.18 13.12	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	05.05.18 13.12	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.05.18 13.12	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.05.18 13.12	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.05.18 13.12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	05.05.18 13.12		
1,4-Difluorobenzene	540-36-3	89	%	70-130	05.05.18 13.12		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-4**
Lab Sample Id: 584484-003

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3048766

Prep Method: E300P

% Moisture:

Date Prep: 05.02.18 13.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1120	24.8	mg/kg	05.02.18 19.22		5

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048989

Prep Method: TX1005P

% Moisture:

Date Prep: 05.03.18 09.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.03.18 15.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	1310	15.0	mg/kg	05.03.18 15.17		1
Oil Range Hydrocarbons (ORO)	PHCG2835	84.5	15.0	mg/kg	05.03.18 15.17		1
Total TPH	PHC635	1390	15.0	mg/kg	05.03.18 15.17		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	84	%	70-135	05.03.18 15.17		
o-Terphenyl	84-15-1	111	%	70-135	05.03.18 15.17		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-4**
Lab Sample Id: 584484-003

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.05.18 13.33	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.05.18 13.33	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.05.18 13.33	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.05.18 13.33	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.05.18 13.33	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.05.18 13.33	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.05.18 13.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	05.05.18 13.33		
1,4-Difluorobenzene	540-36-3	98	%	70-130	05.05.18 13.33		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: SW-3
Lab Sample Id: 584484-004

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3048766

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 05.02.18 13.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.3	4.95	mg/kg	05.02.18 19.28		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048989

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 05.03.18 09.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.03.18 15.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.03.18 15.45	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.03.18 15.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.18 15.45	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	91	%	70-135	05.03.18 15.45		
o-Terphenyl	84-15-1	92	%	70-135	05.03.18 15.45		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-3**
Lab Sample Id: 584484-004

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.05.18 14.36	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.05.18 14.36	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.05.18 14.36	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.05.18 14.36	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.05.18 14.36	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.05.18 14.36	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.05.18 14.36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	05.05.18 14.36		
1,4-Difluorobenzene	540-36-3	93	%	70-130	05.05.18 14.36		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-2**
Lab Sample Id: 584484-005

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3048899

Prep Method: E300P

% Moisture:

Date Prep: 05.02.18 15.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	510	5.00	mg/kg	05.03.18 14.14		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048989

Prep Method: TX1005P

% Moisture:

Date Prep: 05.03.18 09.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	05.03.18 16.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	51.9	14.9	mg/kg	05.03.18 16.14		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	05.03.18 16.14	U	1
Total TPH	PHC635	51.9	14.9	mg/kg	05.03.18 16.14		1

Surrogate

1-Chlorooctane

o-Terphenyl

Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
111-85-3	92	%	70-135	05.03.18 16.14	
84-15-1	93	%	70-135	05.03.18 16.14	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-2**
Lab Sample Id: 584484-005

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.05.18 14.58	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.05.18 14.58	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.05.18 14.58	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.05.18 14.58	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.05.18 14.58	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.05.18 14.58	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.05.18 14.58	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	05.05.18 14.58		
4-Bromofluorobenzene	460-00-4	112	%	70-130	05.05.18 14.58		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-1**
Lab Sample Id: 584484-006

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3048899

Prep Method: E300P

% Moisture:

Date Prep: 05.02.18 15.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	93.1	4.97	mg/kg	05.03.18 14.32		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048989

Prep Method: TX1005P

% Moisture:

Date Prep: 05.03.18 09.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	05.03.18 16.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	05.03.18 16.41	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	05.03.18 16.41	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	05.03.18 16.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	88	%	70-135	05.03.18 16.41		
o-Terphenyl	84-15-1	83	%	70-135	05.03.18 16.41		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-1**
Lab Sample Id: 584484-006

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.05.18 15.19	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.05.18 15.19	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.05.18 15.19	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	05.05.18 15.19	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.05.18 15.19	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.05.18 15.19	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.05.18 15.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	05.05.18 15.19		
1,4-Difluorobenzene	540-36-3	94	%	70-130	05.05.18 15.19		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-1**
Lab Sample Id: 584484-007

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00
Sample Depth: 1

Analytical Method: Chloride by EPA 300
Tech: SCM
Analyst: SCM
Seq Number: 3048899

Date Prep: 05.02.18 15.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	121	5.00	mg/kg	05.03.18 14.38		1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3048989

Date Prep: 05.03.18 09.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.03.18 17.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.03.18 17.09	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.03.18 17.09	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.18 17.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	90	%	70-135	05.03.18 17.09		
o-Terphenyl	84-15-1	86	%	70-135	05.03.18 17.09		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-1**
Lab Sample Id: 584484-007

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00
Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.05.18 15.41	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.05.18 15.41	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.05.18 15.41	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.05.18 15.41	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.05.18 15.41	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.05.18 15.41	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.05.18 15.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	05.05.18 15.41		
1,4-Difluorobenzene	540-36-3	99	%	70-130	05.05.18 15.41		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-2**
Lab Sample Id: 584484-008

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00
Sample Depth: 1

Analytical Method: Chloride by EPA 300
Tech: SCM
Analyst: SCM
Seq Number: 3048899

Date Prep: 05.02.18 15.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.7	4.95	mg/kg	05.03.18 14.44		1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3048989

Date Prep: 05.03.18 09.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.03.18 17.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.03.18 17.37	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.03.18 17.37	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.18 17.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	92	%	70-135	05.03.18 17.37		
o-Terphenyl	84-15-1	91	%	70-135	05.03.18 17.37		



Certificate of Analytical Results 584484



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-2**
Lab Sample Id: 584484-008

Matrix: Soil
Date Collected: 04.27.18 10.30

Date Received: 05.02.18 09.00
Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.35

Basis: Wet Weight

Seq Number: 3049162

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.05.18 16.03	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.05.18 16.03	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.05.18 16.03	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.05.18 16.03	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.05.18 16.03	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.05.18 16.03	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.05.18 16.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	92	%	70-130	05.05.18 16.03		
4-Bromofluorobenzene	460-00-4	95	%	70-130	05.05.18 16.03		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

****** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: Chloride by EPA 300

Seq Number: 3048766

MB Sample Id: 7643901-1-BLK

Matrix: Solid

LCS Sample Id: 7643901-1-BKS

Prep Method: E300P

Date Prep: 05.02.18

LCSD Sample Id: 7643901-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	261	104	265	106	90-110	2	20	mg/kg	05.02.18 16:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3048899

MB Sample Id: 7643902-1-BLK

Matrix: Solid

LCS Sample Id: 7643902-1-BKS

Prep Method: E300P

Date Prep: 05.02.18

LCSD Sample Id: 7643902-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	265	106	266	106	90-110	0	20	mg/kg	05.03.18 14:02	

Analytical Method: Chloride by EPA 300

Seq Number: 3048766

Parent Sample Id: 584478-003

Matrix: Soil

MS Sample Id: 584478-003 S

Prep Method: E300P

Date Prep: 05.02.18

MSD Sample Id: 584478-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	73.5	248	341	108	333	105	90-110	2	20	mg/kg	05.02.18 16:53	

Analytical Method: Chloride by EPA 300

Seq Number: 3048766

Parent Sample Id: 584482-003

Matrix: Soil

MS Sample Id: 584482-003 S

Prep Method: E300P

Date Prep: 05.02.18

MSD Sample Id: 584482-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	6.70	248	271	107	277	109	90-110	2	20	mg/kg	05.02.18 18:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3048899

Parent Sample Id: 584189-057

Matrix: Soil

MS Sample Id: 584189-057 S

Prep Method: E300P

Date Prep: 05.02.18

MSD Sample Id: 584189-057 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.95	248	284	115	284	115	90-110	0	20	mg/kg	05.03.18 15:43	X

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: Chloride by EPA 300

Seq Number: 3048899

Parent Sample Id: 584484-005

Matrix: Soil

MS Sample Id: 584484-005 S

Prep Method: E300P

Date Prep: 05.02.18

MSD Sample Id: 584484-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	510	250	757	99	775	106	90-110	2	20	mg/kg	05.03.18 14:20	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3048989

MB Sample Id: 7644092-1-BLK

Matrix: Solid

LCS Sample Id: 7644092-1-BKS

Prep Method: TX1005P

Date Prep: 05.03.18

LCSD Sample Id: 7644092-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1030	103	1070	107	70-135	4	20	mg/kg	05.03.18 12:31	
Diesel Range Organics (DRO)	<15.0	1000	1150	115	1180	118	70-135	3	20	mg/kg	05.03.18 12:31	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		114		116		70-135	%	05.03.18 12:31
o-Terphenyl	99		115		116		70-135	%	05.03.18 12:31

Analytical Method: TPH By SW8015 Mod

Seq Number: 3048989

Parent Sample Id: 584484-001

Matrix: Soil

MS Sample Id: 584484-001 S

Prep Method: TX1005P

Date Prep: 05.03.18

MSD Sample Id: 584484-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	919	92	928	93	70-135	1	20	mg/kg	05.03.18 13:53	
Diesel Range Organics (DRO)	53.8	997	1060	101	1080	103	70-135	2	20	mg/kg	05.03.18 13:53	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	126		126		70-135	%	05.03.18 13:53
o-Terphenyl	93		93		70-135	%	05.03.18 13:53

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: BTEX by EPA 8021B

Seq Number: 3049162

MB Sample Id: 7644146-1-BLK

Matrix: Solid

LCS Sample Id: 7644146-1-BKS

Prep Method: SW5030B

Date Prep: 05.05.18

LCSD Sample Id: 7644146-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.117	117	0.120	120	70-130	3	35	mg/kg	05.05.18 08:11	
Toluene	<0.00201	0.100	0.113	113	0.117	117	70-130	3	35	mg/kg	05.05.18 08:11	
Ethylbenzene	<0.00201	0.100	0.119	119	0.123	123	70-130	3	35	mg/kg	05.05.18 08:11	
m,p-Xylenes	<0.00402	0.201	0.247	123	0.258	129	70-130	4	35	mg/kg	05.05.18 08:11	
o-Xylene	<0.00201	0.100	0.120	120	0.126	126	70-130	5	35	mg/kg	05.05.18 08:11	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		103		104		70-130	%	05.05.18 08:11
4-Bromofluorobenzene	93		98		105		70-130	%	05.05.18 08:11

Analytical Method: BTEX by EPA 8021B

Seq Number: 3049162

Parent Sample Id: 584211-003

Matrix: Soil

MS Sample Id: 584211-003 S

Prep Method: SW5030B

Date Prep: 05.05.18

MSD Sample Id: 584211-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0741	75	0.0600	60	70-130	21	35	mg/kg	05.05.18 08:54	X
Toluene	<0.00199	0.0994	0.0731	74	0.0608	61	70-130	18	35	mg/kg	05.05.18 08:54	X
Ethylbenzene	<0.00199	0.0994	0.0747	75	0.0669	67	70-130	11	35	mg/kg	05.05.18 08:54	X
m,p-Xylenes	<0.00398	0.199	0.153	77	0.140	70	70-130	9	35	mg/kg	05.05.18 08:54	
o-Xylene	<0.00199	0.0994	0.0785	79	0.0737	74	70-130	6	35	mg/kg	05.05.18 08:54	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	95		102		70-130	%	05.05.18 08:54
4-Bromofluorobenzene	94		111		70-130	%	05.05.18 08:54

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Phoenix, Arizona (480-355-0900)

Xenco Quote #	Xenco Job #
---------------	-------------

58484

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes											
Company Name / Branch:		COG Operating LLC		Project Name/Number:		Momentum 36 SWD #001																	
Company Address:		2407 Pecos Ave, Artesia NM 88210		Project Location:																			
Email: dnee2@concho.com		Phone No: 575-746-2010		Invoice To: COG Operating LLC		Attn: Robert McNeill																	
slilichcock@concho.com				600 W. Illinois Ave.		Midland TX, 79701																	
Project Contact: Dakota Neel				PO Number:																			
Sampler's Name: Dakota Neel																							
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	Ice	TPH Extended	BTEX	CHLORIDES	Field Comments					
1	SW- 6		4/27/2018	10:30 AM	Soil	1									x	x	x						
2	SW- 5		4/27/2018	10:30 AM	Soil	1									x	x	x						
3	SW- 4		4/27/2018	10:30 AM	Soil	1									x	x	x						
4	SW- 3		4/27/2018	10:30 AM	Soil	1									x	x	x						
5	SW- 2		4/27/2018	10:30 AM	Soil	1									x	x	x						
6	SW- 1		4/27/2018	10:30 AM	Soil	1									x	x	x						
7	BTTM-1	1'	4/27/2018	10:30 AM	Soil	1									x	x	x						
8	BTTM-2	1'	4/27/2018	10:30 AM	Soil	1									x	x	x						
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)				Temp: 4.3 IR ID: R-8							
☒ Next Day EMERGENCY				☐ 7 Day TAT				☐ Level III Std QC+ Forms				☐ TRRP Level IV				CF: (0-6: -0.2°C)							
☐ 2 Day EMERGENCY				☐ Contract TAT				☐ Level 3 (CLP Forms)				☐ UST / RG-411				(6-23: +0.2°C)							
☒ 3 Day EMERGENCY				☐ TRRP Checklist												Corrected Temp: 4.3							
TAT Starts Day received by Lab, if received by 5:00 pm																FED-EX / UPS: Tracking #							
Relinquished by Sampler: <i>Dakota Neel</i>				Date Time: <i>5/1/18 9:00 AM</i>				Received By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 5:00 AM</i>				Relinquished By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 10:45</i>			
Relinquished by: <i>Dakota Neel</i>				Date Time: <i>5/1/18 9:00 AM</i>				Received By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 5:00 AM</i>				Relinquished By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 10:45</i>			
3				Date Time: <i>5/1/18 9:00 AM</i>				Received By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 5:00 AM</i>				Relinquished By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 10:45</i>			
5				Date Time: <i>5/1/18 9:00 AM</i>				Received By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 5:00 AM</i>				Relinquished By: <i>Dakota Neel</i>				Date Time: <i>5/1-18 10:45</i>			
Relinquished by:				Date Time:				Received By:				Date Time:				Relinquished By:				Date Time:			
3				Date Time:				Received By:				Date Time:				Relinquished By:				Date Time:			
5				Date Time:				Received By:				Date Time:				Relinquished By:				Date Time:			
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3				Date Time:				Received By:				Date Time:				Relinquished By:				Date Time:			
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Relinquished by:				Date Time:				Received By:				Date Time:				Relinquished By:				Date Time:			
3				Date Time:				Received By:															

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



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 05/02/2018 09:00:00 AM

Work Order #: 584484

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)?	4.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

TPH received in bulk container

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 05/02/2018

Checklist reviewed by:

Jessica Kramer

Date: 05/02/2018



Certificate of Analysis Summary 585756

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 st #1



Project Id:

Contact: Sheldon Hitchcock

Project Location: Lea County, NM

Date Received in Lab: Fri May-11-18 10:51 am

Report Date: 14-MAY-18

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	585756-001					
	Field Id:	SW-#4					
	Depth:						
	Matrix:	SOIL					
	Sampled:	May-09-18 13:00					
BTEX by EPA 8021B	Extracted:	May-11-18 17:00					
	Analyzed:	May-11-18 21:16					
	Units/RL:	mg/kg RL					
	Benzene	<0.00201 0.00201					
	Toluene	<0.00201 0.00201					
	Ethylbenzene	<0.00201 0.00201					
	m,p-Xylenes	<0.00402 0.00402					
	o-Xylene	<0.00201 0.00201					
	Total Xylenes	<0.00201 0.00201					
	Total BTEX	<0.00201 0.00201					
Chloride by EPA 300	Extracted:	May-12-18 13:00					
	Analyzed:	May-12-18 17:46					
	Units/RL:	mg/kg RL					
Chloride		7.37 4.93					
TPH By SW8015 Mod	Extracted:	May-11-18 16:00					
	Analyzed:	May-12-18 01:18					
	Units/RL:	mg/kg RL					
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0					
	Diesel Range Organics (DRO)	<15.0 15.0					
	Oil Range Hydrocarbons (ORO)	<15.0 15.0					
	Total TPH	<15.0 15.0					

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

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 585756

for COG Operating LLC

Project Manager: Sheldon Hitchcock

Momentum 36 st #1

14-MAY-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-25), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



14-MAY-18

Project Manager: **Sheldon Hitchcock**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **585756**

Momentum 36 st #1

Project Address: Lea County, NM

Sheldon Hitchcock:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 585756. 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. 585756 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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



Sample Cross Reference 585756



COG Operating LLC, Artesia, NM

Momentum 36 st #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-#4	S	05-09-18 13:00		585756-001



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Momentum 36 st #1

Project ID:

Work Order Number(s): 585756

Report Date: 14-MAY-18

Date Received: 05/11/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3049942 BTEX by EPA 8021B

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



Certificate of Analytical Results 585756



COG Operating LLC, Artesia, NM

Momentum 36 st #1

Sample Id: **SW-#4**
Lab Sample Id: 585756-001

Matrix: Soil
Date Collected: 05.09.18 13.00

Date Received: 05.11.18 10.51

Analytical Method: Chloride by EPA 300
Tech: SCM
Analyst: SCM
Seq Number: 3049930

Prep Method: E300P
% Moisture:
Date Prep: 05.12.18 13.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.37	4.93	mg/kg	05.12.18 17.46		1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3049896

Prep Method: TX1005P
% Moisture:
Date Prep: 05.11.18 16.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.12.18 01.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.12.18 01.18	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.12.18 01.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.12.18 01.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	05.12.18 01.18	
o-Terphenyl	84-15-1	87	%	70-135	05.12.18 01.18	



Certificate of Analytical Results 585756



COG Operating LLC, Artesia, NM

Momentum 36 st #1

Sample Id: **SW-#4**
Lab Sample Id: 585756-001

Matrix: Soil
Date Collected: 05.09.18 13.00

Date Received: 05.11.18 10.51

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.11.18 17.00

Basis: Wet Weight

Seq Number: 3049942

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.11.18 21.16	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.11.18 21.16	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.11.18 21.16	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.11.18 21.16	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.11.18 21.16	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.11.18 21.16	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.11.18 21.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	05.11.18 21.16		
1,4-Difluorobenzene	540-36-3	97	%	70-130	05.11.18 21.16		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

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



COG Operating LLC

Momentum 36 st #1

Analytical Method: Chloride by EPA 300

Seq Number: 3049930

MB Sample Id: 7644602-1-BLK

Matrix: Solid

LCS Sample Id: 7644602-1-BKS

Prep Method: E300P

Date Prep: 05.12.18

LCSD Sample Id: 7644602-1-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	273	109	261	104	90-110	4	20	mg/kg	05.12.18 16:58	

Analytical Method: Chloride by EPA 300

Seq Number: 3049930

Parent Sample Id: 585579-001

Matrix: Soil

MS Sample Id: 585579-001 S

Prep Method: E300P

Date Prep: 05.12.18

MSD Sample Id: 585579-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.95	248	266	107	265	107	90-110	0	20	mg/kg	05.12.18 18:40	

Analytical Method: Chloride by EPA 300

Seq Number: 3049930

Parent Sample Id: 585652-002

Matrix: Soil

MS Sample Id: 585652-002 S

Prep Method: E300P

Date Prep: 05.12.18

MSD Sample Id: 585652-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.96	248	308	124	299	121	90-110	3	20	mg/kg	05.12.18 17:16	X

Analytical Method: TPH By SW8015 Mod

Seq Number: 3049896

MB Sample Id: 7644584-1-BLK

Matrix: Solid

LCS Sample Id: 7644584-1-BKS

Prep Method: TX1005P

Date Prep: 05.11.18

LCSD Sample Id: 7644584-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	956	96	1120	112	70-135	16	20	mg/kg	05.12.18 00:26	
Diesel Range Organics (DRO)	<15.0	1000	1060	106	1180	118	70-135	11	20	mg/kg	05.12.18 00:26	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	110		105		122		70-135	%	05.12.18 00:26
o-Terphenyl	114		100		117		70-135	%	05.12.18 00:26

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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



COG Operating LLC

Momentum 36 st #1

Analytical Method: TPH By SW8015 Mod

Seq Number: 3049896

Parent Sample Id: 585756-001

Matrix: Soil

MS Sample Id: 585756-001 S

Prep Method: TX1005P

Date Prep: 05.11.18

MSD Sample Id: 585756-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	976	98	967	97	70-135	1	20	mg/kg	05.12.18 01:44	
Diesel Range Organics (DRO)	<15.0	1000	1110	111	1100	110	70-135	1	20	mg/kg	05.12.18 01:44	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		104		70-135	%	05.12.18 01:44
o-Terphenyl	101		99		70-135	%	05.12.18 01:44

Analytical Method: BTEX by EPA 8021B

Seq Number: 3049942

MB Sample Id: 7644628-1-BLK

Matrix: Solid

LCS Sample Id: 7644628-1-BKS

Prep Method: SW5030B

Date Prep: 05.11.18

LCSD Sample Id: 7644628-1-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	0.108	108	0.101	101	70-130	7	35	mg/kg	05.11.18 17:19	
Toluene	<0.00200	0.100	0.105	105	0.0967	97	70-130	8	35	mg/kg	05.11.18 17:19	
Ethylbenzene	<0.00200	0.100	0.111	111	0.103	103	70-130	7	35	mg/kg	05.11.18 17:19	
m,p-Xylenes	<0.00401	0.200	0.231	116	0.216	107	70-130	7	35	mg/kg	05.11.18 17:19	
o-Xylene	<0.00200	0.100	0.117	117	0.108	108	70-130	8	35	mg/kg	05.11.18 17:19	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		106		97		70-130	%	05.11.18 17:19
4-Bromofluorobenzene	110		103		96		70-130	%	05.11.18 17:19

Analytical Method: BTEX by EPA 8021B

Seq Number: 3049942

Parent Sample Id: 585089-009

Matrix: Soil

MS Sample Id: 585089-009 S

Prep Method: SW5030B

Date Prep: 05.11.18

MSD Sample Id: 585089-009 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	0.0994	0.0474	48	0.0576	58	70-130	19	35	mg/kg	05.11.18 18:02	X
Toluene	<0.00199	0.0994	0.0459	46	0.0560	56	70-130	20	35	mg/kg	05.11.18 18:02	X
Ethylbenzene	<0.00199	0.0994	0.0464	47	0.0580	58	70-130	22	35	mg/kg	05.11.18 18:02	X
m,p-Xylenes	<0.00398	0.199	0.0970	49	0.121	61	70-130	22	35	mg/kg	05.11.18 18:02	X
o-Xylene	<0.00199	0.0994	0.0512	52	0.0610	61	70-130	17	35	mg/kg	05.11.18 18:02	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		103		70-130	%	05.11.18 18:02
4-Bromofluorobenzene	114		111		70-130	%	05.11.18 18:02

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

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

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



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Page 1 of 1

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585756

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: COG Operating, LLC				Project Name/Number: POMCATION 36 St # 1				Xenco Quote #				Xenco Job #						
Company Address: 2407 Pecos Ave. Artesia NM 82210				Project Location: Lea County NM				Xenco Date #				Xenco Job #						
Email: slhitchcock@concho.com Phone No: 575-703-6475 dhelz@concho.com; cgray@concho.com; haskell@concho.com				Invoice To: COG Operating, LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland TX, 79701				Xenco Date #				Xenco Job #						
Project Contact: Sheldon Hitchcock				PO Number:				Xenco Date #				Xenco Job #						
Samplers Name: Christopher Gray								Xenco Date #				Xenco Job #						
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	HCI	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments
1	SW-#4 6 inch	6 inch	5/9/18	1:00	S	1												
2					S	1												
3					S	1												
4					S	1												
5					S	1												
6					S	1												
7					S	1												
8					S	1												
9					S	1												
10					S	1												
Turnaround Time (Business days)																		
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 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 COURIER DELIVERY																		
Relinquished by Sampler: Christopher Gray Date Time: 5/9/18 4:11 PM Received By: Sheldon McNeill Date Time: 5/9/18 5:14 PM																		
Relinquished By: Christopher Gray Date Time: 5/10/18 3:00 PM Received By: Sheldon McNeill Date Time: 5/11/18 10:51 AM																		
Relinquished By: Christopher Gray Date Time: 5/10/18 3:00 PM Received By: Sheldon McNeill Date Time: 5/11/18 10:51 AM																		
Custody Seal # 1051 Preserved where applicable																		
On Ice ☒ Cooler Temp. Thermo. Corr. Factor																		

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



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 05/11/2018 10:51:00 AM

Work Order #: 585756

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 05/11/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 05/11/2018



Certificate of Analysis Summary 583957

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 SWD #001



Project Id:

Contact: Dakota Neel

Project Location: Lea County, NM

Date Received in Lab: Fri Apr-27-18 10:28 am

Report Date: 01-MAY-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	583957-001	583957-002	583957-003	583957-004	583957-005	583957-006
	<i>Field Id:</i>	SW-7	SW-8	SW-9	SW-10	SW-11	SW-12
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-25-18 10:05	Apr-25-18 10:10	Apr-25-18 10:15	Apr-25-18 10:20	Apr-25-18 10:25	Apr-25-18 10:30
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-28-18 07:55	Apr-30-18 17:00	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55
	<i>Analyzed:</i>	Apr-28-18 10:56	May-01-18 01:40	Apr-28-18 11:35	Apr-28-18 11:54	Apr-28-18 12:14	Apr-28-18 12:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201
m,p-Xylenes		<0.00401 0.00401	<0.00402 0.00402	<0.00399 0.00399	<0.00403 0.00403	<0.00397 0.00397	<0.00402 0.00402
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15
	<i>Analyzed:</i>	Apr-28-18 00:53	Apr-28-18 01:11	Apr-28-18 01:17	Apr-28-18 01:23	Apr-28-18 01:29	Apr-28-18 01:47
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.91 4.91	<4.98 4.98	<4.92 4.92	<4.98 4.98	<4.95 4.95	<4.93 4.93
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00
	<i>Analyzed:</i>	Apr-28-18 16:15	Apr-28-18 17:34	Apr-28-18 18:01	Apr-28-18 18:26	Apr-28-18 18:53	Apr-28-18 19:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	186 14.9
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	15.9 14.9
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	202 14.9

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

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

Version: 1.9%

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 583957

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 SWD #001



Project Id:

Contact: Dakota Neel

Project Location: Lea County, NM

Date Received in Lab: Fri Apr-27-18 10:28 am

Report Date: 01-MAY-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	583957-007	583957-008	583957-009	583957-010	583957-011	583957-012
	<i>Field Id:</i>	SW-13	SW-14	SW-15	SW-16	SW-17	SW-18
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-25-18 10:35	Apr-25-18 10:40	Apr-25-18 10:45	Apr-25-18 10:50	Apr-25-18 10:55	Apr-25-18 11:00
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55
	<i>Analyzed:</i>	Apr-28-18 12:52	Apr-28-18 13:10	Apr-28-18 13:29	Apr-28-18 13:48	Apr-28-18 14:48	Apr-28-18 15:08
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00403 0.00403	<0.00404 0.00404	<0.00398 0.00398	<0.00399 0.00399	<0.00401 0.00401	<0.00402 0.00402
o-Xylene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15
	<i>Analyzed:</i>	Apr-28-18 01:53	Apr-28-18 01:59	Apr-28-18 02:05	Apr-28-18 02:10	Apr-28-18 02:16	Apr-28-18 02:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.90 4.90	<4.90 4.90	<4.93 4.93	<4.93 4.93	<4.99 4.99	<4.98 4.98
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00
	<i>Analyzed:</i>	Apr-28-18 19:45	Apr-28-18 20:11	Apr-28-18 20:38	Apr-28-18 21:05	Apr-28-18 22:25	Apr-28-18 22:53
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 583957

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 SWD #001



Project Id:

Contact: Dakota Neel

Project Location: Lea County, NM

Date Received in Lab: Fri Apr-27-18 10:28 am

Report Date: 01-MAY-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	583957-013	583957-014	583957-015	583957-016	583957-017	583957-018
	<i>Field Id:</i>	SW-19	SW-20	BTTM-3	BTTM-4	BTTM-5	T6/T5 Transition
	<i>Depth:</i>			1	1	1	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-25-18 11:05	Apr-25-18 11:10	Apr-25-18 11:15	Apr-25-18 11:20	Apr-25-18 11:25	Apr-25-18 11:30
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55
	<i>Analyzed:</i>	Apr-28-18 15:27	Apr-28-18 15:45	Apr-28-18 16:04	Apr-28-18 16:23	Apr-28-18 16:42	Apr-28-18 17:02
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
m,p-Xylenes		<0.00398 0.00398	<0.00397 0.00397	<0.00404 0.00404	<0.00401 0.00401	<0.00399 0.00399	<0.00402 0.00402
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15	Apr-27-18 16:15
	<i>Analyzed:</i>	Apr-28-18 02:40	Apr-28-18 02:58	Apr-28-18 03:04	Apr-28-18 03:10	Apr-28-18 03:16	Apr-28-18 03:22
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.90 4.90	<5.00 5.00	<5.00 5.00	<4.92 4.92	<4.98 4.98	37.4 4.95
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00	Apr-28-18 12:00
	<i>Analyzed:</i>	Apr-28-18 23:19	Apr-28-18 23:44	Apr-29-18 00:11	Apr-29-18 00:38	Apr-29-18 01:06	Apr-29-18 01:32
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	15.6 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	431 14.9	129 15.0	<15.0 15.0	1370 15.0	116 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	16.0 14.9	<15.0 15.0	<15.0 15.0	30.3 15.0	<15.0 15.0
Total TPH		<15.0 15.0	463 14.9	129 15.0	<15.0 15.0	1400 15.0	116 15.0

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Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 583957

COG Operating LLC, Artesia, NM

Project Name: Momentum 36 SWD #001



Project Id:

Contact: Dakota Neel

Project Location: Lea County, NM

Date Received in Lab: Fri Apr-27-18 10:28 am

Report Date: 01-MAY-18

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	583957-019	583957-020	583957-021			
	<i>Field Id:</i>	T5/T3 Transition	T3/T2 Transition	T8/T7 Transition			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Apr-25-18 11:35	Apr-25-18 11:40	Apr-25-18 11:45			
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-28-18 07:55	Apr-28-18 07:55	Apr-28-18 07:55			
	<i>Analyzed:</i>	Apr-28-18 17:21	Apr-28-18 17:40	Apr-28-18 20:35			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199			
Toluene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199			
Ethylbenzene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199			
m,p-Xylenes		<0.00398 0.00398	<0.00402 0.00402	<0.00398 0.00398			
o-Xylene		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199			
Total Xylenes		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199			
Total BTEX		<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199			
Chloride by EPA 300	<i>Extracted:</i>	Apr-27-18 16:15	Apr-27-18 16:15	Apr-28-18 10:45			
	<i>Analyzed:</i>	Apr-28-18 03:28	Apr-28-18 03:34	Apr-28-18 14:13			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		<4.93 4.93	<4.97 4.97	530 4.91			
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-28-18 12:00	Apr-28-18 12:00	Apr-27-18 17:00			
	<i>Analyzed:</i>	Apr-29-18 01:57	Apr-29-18 02:25	Apr-28-18 08:08			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0			
Diesel Range Organics (DRO)		<15.0 15.0	57.3 15.0	578 15.0			
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	48.2 15.0			
Total TPH		<15.0 15.0	57.3 15.0	626 15.0			

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Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 583957

for COG Operating LLC

Project Manager: Dakota Neel

Momentum 36 SWD #001

01-MAY-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-24), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



01-MAY-18

Project Manager: **Dakota Neel**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **583957**

Momentum 36 SWD #001

Project Address: Lea County, NM

Dakota Neel:

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) 583957. 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. 583957 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Project Assistant

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Sample Cross Reference 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW-7	S	04-25-18 10:05		583957-001
SW-8	S	04-25-18 10:10		583957-002
SW-9	S	04-25-18 10:15		583957-003
SW-10	S	04-25-18 10:20		583957-004
SW-11	S	04-25-18 10:25		583957-005
SW-12	S	04-25-18 10:30		583957-006
SW-13	S	04-25-18 10:35		583957-007
SW-14	S	04-25-18 10:40		583957-008
SW-15	S	04-25-18 10:45		583957-009
SW-16	S	04-25-18 10:50		583957-010
SW-17	S	04-25-18 10:55		583957-011
SW-18	S	04-25-18 11:00		583957-012
SW-19	S	04-25-18 11:05		583957-013
SW-20	S	04-25-18 11:10		583957-014
BTTM-3	S	04-25-18 11:15	- 1	583957-015
BTTM-4	S	04-25-18 11:20	- 1	583957-016
BTTM-5	S	04-25-18 11:25	- 1	583957-017
T6/T5 Transition	S	04-25-18 11:30		583957-018
T5/T3 Transition	S	04-25-18 11:35		583957-019
T3/T2 Transition	S	04-25-18 11:40		583957-020
T8/T7 Transition	S	04-25-18 11:45		583957-021



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Momentum 36 SWD #001

Project ID:
Work Order Number(s): 583957

Report Date: 01-MAY-18
Date Received: 04/27/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3048375 BTEX by EPA 8021B

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

Batch: LBA-3048379 BTEX by EPA 8021B

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

Lab Sample ID 583957-021 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). o-Xylene recovered below QC limits in the Matrix Spike. Ethylbenzene, m,p-Xylenes recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 583957-021.

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

Batch: LBA-3048431 BTEX by EPA 8021B

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



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: SW-7
Lab Sample Id: 583957-001

Matrix: Soil
Date Collected: 04.25.18 10.05

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.91	4.91	mg/kg	04.28.18 00.53	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 16.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 16.15	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 16.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 16.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	04.28.18 16.15	
o-Terphenyl	84-15-1	92	%	70-135	04.28.18 16.15	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-7**
Lab Sample Id: 583957-001

Matrix: Soil
Date Collected: 04.25.18 10.05

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.28.18 10.56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.28.18 10.56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.28.18 10.56	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.28.18 10.56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.28.18 10.56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.28.18 10.56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.28.18 10.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.28.18 10.56		
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.28.18 10.56		



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-8**
Lab Sample Id: 583957-002

Matrix: Soil
Date Collected: 04.25.18 10.10

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	04.28.18 01.11	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 17.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 17.34	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 17.34	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 17.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	04.28.18 17.34	
o-Terphenyl	84-15-1	98	%	70-135	04.28.18 17.34	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-8**
Lab Sample Id: 583957-002

Matrix: Soil
Date Collected: 04.25.18 10.10

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.30.18 17.00

Basis: Wet Weight

Seq Number: 3048431

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.01.18 01.40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.01.18 01.40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.01.18 01.40	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.01.18 01.40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.01.18 01.40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.01.18 01.40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.01.18 01.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	111	%	70-130	05.01.18 01.40		
1,4-Difluorobenzene	540-36-3	104	%	70-130	05.01.18 01.40		



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-9**
Lab Sample Id: 583957-003

Matrix: Soil
Date Collected: 04.25.18 10.15

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Date Prep: 04.27.18 16.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.92	4.92	mg/kg	04.28.18 01.17	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Date Prep: 04.28.18 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 18.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 18.01	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 18.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 18.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	04.28.18 18.01	
o-Terphenyl	84-15-1	85	%	70-135	04.28.18 18.01	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-9**
Lab Sample Id: 583957-003

Matrix: Soil
Date Collected: 04.25.18 10.15

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.28.18 11.35	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.28.18 11.35	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.28.18 11.35	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.28.18 11.35	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.28.18 11.35	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.28.18 11.35	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.28.18 11.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	90	%	70-130	04.28.18 11.35		
1,4-Difluorobenzene	540-36-3	107	%	70-130	04.28.18 11.35		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-10**
Lab Sample Id: 583957-004

Matrix: Soil
Date Collected: 04.25.18 10.20

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	04.28.18 01.23	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 18.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 18.26	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 18.26	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 18.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.28.18 18.26	
o-Terphenyl	84-15-1	93	%	70-135	04.28.18 18.26	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-10**
Lab Sample Id: 583957-004

Matrix: Soil
Date Collected: 04.25.18 10.20

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.28.18 11.54	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.28.18 11.54	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.28.18 11.54	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.28.18 11.54	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.28.18 11.54	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.28.18 11.54	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.28.18 11.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.28.18 11.54		
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.28.18 11.54		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-11**
Lab Sample Id: 583957-005

Matrix: Soil
Date Collected: 04.25.18 10.25

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	04.28.18 01.29	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 18.53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 18.53	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 18.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 18.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	04.28.18 18.53	
o-Terphenyl	84-15-1	84	%	70-135	04.28.18 18.53	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-11**
Lab Sample Id: 583957-005

Matrix: Soil
Date Collected: 04.25.18 10.25

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.28.18 12.14	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.28.18 12.14	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.28.18 12.14	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.28.18 12.14	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.28.18 12.14	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.28.18 12.14	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.28.18 12.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.28.18 12.14		
4-Bromofluorobenzene	460-00-4	92	%	70-130	04.28.18 12.14		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-12**
Lab Sample Id: 583957-006

Matrix: Soil
Date Collected: 04.25.18 10.30

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.93	4.93	mg/kg	04.28.18 01.47	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.28.18 19.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	186	14.9	mg/kg	04.28.18 19.19		1
Oil Range Hydrocarbons (ORO)	PHCG2835	15.9	14.9	mg/kg	04.28.18 19.19		1
Total TPH	PHC635	202	14.9	mg/kg	04.28.18 19.19		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	04.28.18 19.19	
o-Terphenyl	84-15-1	90	%	70-135	04.28.18 19.19	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-12**
Lab Sample Id: 583957-006

Matrix: Soil
Date Collected: 04.25.18 10.30

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.28.18 12.33	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.28.18 12.33	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.28.18 12.33	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.28.18 12.33	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.28.18 12.33	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.28.18 12.33	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.28.18 12.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.28.18 12.33		
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.28.18 12.33		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-13**
Lab Sample Id: 583957-007

Matrix: Soil
Date Collected: 04.25.18 10.35

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.28.18 01.53	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 19.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 19.45	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 19.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 19.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.28.18 19.45	
o-Terphenyl	84-15-1	86	%	70-135	04.28.18 19.45	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-13**
Lab Sample Id: 583957-007

Matrix: Soil
Date Collected: 04.25.18 10.35

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.28.18 12.52	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.28.18 12.52	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.28.18 12.52	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.28.18 12.52	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.28.18 12.52	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.28.18 12.52	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.28.18 12.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	92	%	70-130	04.28.18 12.52		
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.28.18 12.52		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-14**
Lab Sample Id: 583957-008

Matrix: Soil
Date Collected: 04.25.18 10.40

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.28.18 01.59	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 20.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 20.11	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 20.11	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 20.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.28.18 20.11	
o-Terphenyl	84-15-1	87	%	70-135	04.28.18 20.11	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-14**
Lab Sample Id: 583957-008

Matrix: Soil
Date Collected: 04.25.18 10.40

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.28.18 13.10	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.28.18 13.10	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.28.18 13.10	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.28.18 13.10	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.28.18 13.10	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.28.18 13.10	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.28.18 13.10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.28.18 13.10		
1,4-Difluorobenzene	540-36-3	110	%	70-130	04.28.18 13.10		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-15**
Lab Sample Id: 583957-009

Matrix: Soil
Date Collected: 04.25.18 10.45

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.93	4.93	mg/kg	04.28.18 02.05	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 20.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 20.38	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 20.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 20.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	04.28.18 20.38	
o-Terphenyl	84-15-1	86	%	70-135	04.28.18 20.38	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-15**
Lab Sample Id: 583957-009

Matrix: Soil
Date Collected: 04.25.18 10.45

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.28.18 13.29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.28.18 13.29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.28.18 13.29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.28.18 13.29	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.28.18 13.29	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.28.18 13.29	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.28.18 13.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.28.18 13.29		
4-Bromofluorobenzene	460-00-4	91	%	70-130	04.28.18 13.29		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-16**
Lab Sample Id: 583957-010

Matrix: Soil
Date Collected: 04.25.18 10.50

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.93	4.93	mg/kg	04.28.18 02.10	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 21.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 21.05	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 21.05	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 21.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	04.28.18 21.05	
o-Terphenyl	84-15-1	104	%	70-135	04.28.18 21.05	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-16**
Lab Sample Id: 583957-010

Matrix: Soil
Date Collected: 04.25.18 10.50

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.28.18 13.48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.28.18 13.48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.28.18 13.48	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.28.18 13.48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.28.18 13.48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.28.18 13.48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.28.18 13.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	04.28.18 13.48		
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.28.18 13.48		



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-17**
Lab Sample Id: 583957-011

Matrix: Soil
Date Collected: 04.25.18 10.55

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Date Prep: 04.27.18 16.15

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	04.28.18 02.16	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Date Prep: 04.28.18 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 22.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 22.25	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 22.25	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 22.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.28.18 22.25	
o-Terphenyl	84-15-1	88	%	70-135	04.28.18 22.25	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-17**
Lab Sample Id: 583957-011

Matrix: Soil
Date Collected: 04.25.18 10.55

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.28.18 14.48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.28.18 14.48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.28.18 14.48	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.28.18 14.48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.28.18 14.48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.28.18 14.48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.28.18 14.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.28.18 14.48		
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.28.18 14.48		



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-18**
Lab Sample Id: 583957-012

Matrix: Soil
Date Collected: 04.25.18 11.00

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	04.28.18 02.34	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 22.53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 22.53	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 22.53	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 22.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	04.28.18 22.53	
o-Terphenyl	84-15-1	82	%	70-135	04.28.18 22.53	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-18**
Lab Sample Id: 583957-012

Matrix: Soil
Date Collected: 04.25.18 11.00

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.28.18 15.08	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.28.18 15.08	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.28.18 15.08	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.28.18 15.08	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.28.18 15.08	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.28.18 15.08	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.28.18 15.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	70-130	04.28.18 15.08		
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.28.18 15.08		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-19**
Lab Sample Id: 583957-013

Matrix: Soil
Date Collected: 04.25.18 11.05

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.28.18 02.40	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 23.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.28.18 23.19	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.28.18 23.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.28.18 23.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.28.18 23.19	
o-Terphenyl	84-15-1	92	%	70-135	04.28.18 23.19	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-19**
Lab Sample Id: 583957-013

Matrix: Soil
Date Collected: 04.25.18 11.05

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.28.18 15.27	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.28.18 15.27	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.28.18 15.27	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.28.18 15.27	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.28.18 15.27	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.28.18 15.27	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.28.18 15.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.28.18 15.27		
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.28.18 15.27		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-20**
Lab Sample Id: 583957-014

Matrix: Soil
Date Collected: 04.25.18 11.10

Date Received: 04.27.18 10.28

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: SCM

Seq Number: 3048240

Prep Method: E300P

% Moisture:

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.28.18 02.58	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3048345

Prep Method: TX1005P

% Moisture:

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	15.6	14.9	mg/kg	04.28.18 23.44		1
Diesel Range Organics (DRO)	C10C28DRO	431	14.9	mg/kg	04.28.18 23.44		1
Oil Range Hydrocarbons (ORO)	PHCG2835	16.0	14.9	mg/kg	04.28.18 23.44		1
Total TPH	PHC635	463	14.9	mg/kg	04.28.18 23.44		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.28.18 23.44	
o-Terphenyl	84-15-1	99	%	70-135	04.28.18 23.44	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **SW-20**
Lab Sample Id: 583957-014

Matrix: Soil
Date Collected: 04.25.18 11.10

Date Received: 04.27.18 10.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.28.18 15.45	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.28.18 15.45	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.28.18 15.45	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.28.18 15.45	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.28.18 15.45	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.28.18 15.45	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.28.18 15.45	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4		85	%	70-130	04.28.18 15.45	
1,4-Difluorobenzene	540-36-3		98	%	70-130	04.28.18 15.45	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-3**
Lab Sample Id: 583957-015

Matrix: Soil
Date Collected: 04.25.18 11.15

Date Received: 04.27.18 10.28
Sample Depth: 1

Analytical Method: Chloride by EPA 300
Tech: OJS
Analyst: SCM
Seq Number: 3048240

Date Prep: 04.27.18 16.15

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.28.18 03.04	U	1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3048345

Date Prep: 04.28.18 12.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.18 00.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	129	15.0	mg/kg	04.29.18 00.11		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.29.18 00.11	U	1
Total TPH	PHC635	129	15.0	mg/kg	04.29.18 00.11		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	89	%	70-135	04.29.18 00.11		
o-Terphenyl	84-15-1	89	%	70-135	04.29.18 00.11		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-3**
Lab Sample Id: 583957-015

Matrix: Soil
Date Collected: 04.25.18 11.15

Date Received: 04.27.18 10.28
Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3048375

Date Prep: 04.28.18 07.55

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	04.28.18 16.04	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.28.18 16.04	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.28.18 16.04	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.28.18 16.04	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.28.18 16.04	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.28.18 16.04	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.28.18 16.04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.28.18 16.04		
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.28.18 16.04		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-4**
Lab Sample Id: 583957-016

Matrix: Soil
Date Collected: 04.25.18 11.20

Date Received: 04.27.18 10.28
Sample Depth: 1

Analytical Method: Chloride by EPA 300
Tech: OJS
Analyst: SCM
Seq Number: 3048240

Date Prep: 04.27.18 16.15

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.92	4.92	mg/kg	04.28.18 03.10	U	1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3048345

Date Prep: 04.28.18 12.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.18 00.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.18 00.38	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.29.18 00.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.18 00.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	04.29.18 00.38	
o-Terphenyl	84-15-1	86	%	70-135	04.29.18 00.38	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-4**
Lab Sample Id: 583957-016

Matrix: Soil
Date Collected: 04.25.18 11.20

Date Received: 04.27.18 10.28
Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3048375

Date Prep: 04.28.18 07.55

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.28.18 16.23	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.28.18 16.23	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.28.18 16.23	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.28.18 16.23	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.28.18 16.23	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.28.18 16.23	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.28.18 16.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.28.18 16.23		
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.28.18 16.23		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-5**
Lab Sample Id: 583957-017

Matrix: Soil
Date Collected: 04.25.18 11.25

Date Received: 04.27.18 10.28
Sample Depth: 1

Analytical Method: Chloride by EPA 300
Tech: OJS
Analyst: SCM
Seq Number: 3048240

Date Prep: 04.27.18 16.15

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	04.28.18 03.16	U	1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3048345

Date Prep: 04.28.18 12.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.18 01.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	1370	15.0	mg/kg	04.29.18 01.06		1
Oil Range Hydrocarbons (ORO)	PHCG2835	30.3	15.0	mg/kg	04.29.18 01.06		1
Total TPH	PHC635	1400	15.0	mg/kg	04.29.18 01.06		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	04.29.18 01.06	
o-Terphenyl	84-15-1	111	%	70-135	04.29.18 01.06	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **BTTM-5**
Lab Sample Id: 583957-017

Matrix: Soil
Date Collected: 04.25.18 11.25

Date Received: 04.27.18 10.28
Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3048375

Date Prep: 04.28.18 07.55

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.28.18 16.42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.28.18 16.42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.28.18 16.42	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.28.18 16.42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.28.18 16.42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.28.18 16.42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.28.18 16.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.28.18 16.42		
1,4-Difluorobenzene	540-36-3	106	%	70-130	04.28.18 16.42		



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T6/T5 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-018

Date Collected: 04.25.18 11.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: SCM

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Seq Number: 3048240

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	37.4	4.95	mg/kg	04.28.18 03.22		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Seq Number: 3048345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.18 01.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	116	15.0	mg/kg	04.29.18 01.32		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.29.18 01.32	U	1
Total TPH	PHC635	116	15.0	mg/kg	04.29.18 01.32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	04.29.18 01.32	
o-Terphenyl	84-15-1	93	%	70-135	04.29.18 01.32	



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COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T6/T5 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-018

Date Collected: 04.25.18 11.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.28.18 17.02	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.28.18 17.02	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.28.18 17.02	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.28.18 17.02	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.28.18 17.02	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.28.18 17.02	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.28.18 17.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.28.18 17.02		
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.28.18 17.02		



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T5/T3 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-019

Date Collected: 04.25.18 11.35

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: SCM

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Seq Number: 3048240

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.93	4.93	mg/kg	04.28.18 03.28	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Seq Number: 3048345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.18 01.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.29.18 01.57	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.29.18 01.57	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.29.18 01.57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	04.29.18 01.57	
o-Terphenyl	84-15-1	91	%	70-135	04.29.18 01.57	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T5/T3 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-019

Date Collected: 04.25.18 11.35

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.28.18 17.21	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.28.18 17.21	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.28.18 17.21	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.28.18 17.21	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.28.18 17.21	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.28.18 17.21	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.28.18 17.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.28.18 17.21		
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.28.18 17.21		



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T3/T2 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-020

Date Collected: 04.25.18 11.40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: SCM

Date Prep: 04.27.18 16.15

Basis: Wet Weight

Seq Number: 3048240

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	04.28.18 03.34	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.28.18 12.00

Basis: Wet Weight

Seq Number: 3048345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.29.18 02.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	57.3	15.0	mg/kg	04.29.18 02.25		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.29.18 02.25	U	1
Total TPH	PHC635	57.3	15.0	mg/kg	04.29.18 02.25		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.29.18 02.25	
o-Terphenyl	84-15-1	97	%	70-135	04.29.18 02.25	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T3/T2 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-020

Date Collected: 04.25.18 11.40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.28.18 17.40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.28.18 17.40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.28.18 17.40	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.28.18 17.40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.28.18 17.40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.28.18 17.40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.28.18 17.40	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene		460-00-4	101	%	70-130	04.28.18 17.40	
1,4-Difluorobenzene		540-36-3	104	%	70-130	04.28.18 17.40	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T8/T7 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-021

Date Collected: 04.25.18 11.45

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.28.18 10.45

Basis: Wet Weight

Seq Number: 3048260

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	530	4.91	mg/kg	04.28.18 14.13		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.27.18 17.00

Basis: Wet Weight

Seq Number: 3048340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.28.18 08.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	578	15.0	mg/kg	04.28.18 08.08		1
Oil Range Hydrocarbons (ORO)	PHCG2835	48.2	15.0	mg/kg	04.28.18 08.08		1
Total TPH	PHC635	626	15.0	mg/kg	04.28.18 08.08		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.28.18 08.08	
o-Terphenyl	84-15-1	101	%	70-135	04.28.18 08.08	



Certificate of Analytical Results 583957



COG Operating LLC, Artesia, NM

Momentum 36 SWD #001

Sample Id: **T8/T7 Transition**

Matrix: Soil

Date Received: 04.27.18 10.28

Lab Sample Id: 583957-021

Date Collected: 04.25.18 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.28.18 07.55

Basis: Wet Weight

Seq Number: 3048379

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.28.18 20.35	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.28.18 20.35	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.28.18 20.35	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.28.18 20.35	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.28.18 20.35	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.28.18 20.35	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.28.18 20.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.28.18 20.35		
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.28.18 20.35		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: Chloride by EPA 300

Seq Number: 3048240

MB Sample Id: 7643618-1-BLK

Matrix: Solid

LCS Sample Id: 7643618-1-BKS

Prep Method: E300P

Date Prep: 04.27.18

LCSD Sample Id: 7643618-1-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	255	102	252	101	90-110	1	20	mg/kg	04.28.18 00:41	

Analytical Method: Chloride by EPA 300

Seq Number: 3048260

MB Sample Id: 7643621-1-BLK

Matrix: Solid

LCS Sample Id: 7643621-1-BKS

Prep Method: E300P

Date Prep: 04.28.18

LCSD Sample Id: 7643621-1-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	246	98	252	101	90-110	2	20	mg/kg	04.28.18 11:30	

Analytical Method: Chloride by EPA 300

Seq Number: 3048240

Parent Sample Id: 583957-001

Matrix: Soil

MS Sample Id: 583957-001 S

Prep Method: E300P

Date Prep: 04.27.18

MSD Sample Id: 583957-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.91	246	250	102	257	104	90-110	3	20	mg/kg	04.28.18 00:59	

Analytical Method: Chloride by EPA 300

Seq Number: 3048240

Parent Sample Id: 583957-011

Matrix: Soil

MS Sample Id: 583957-011 S

Prep Method: E300P

Date Prep: 04.27.18

MSD Sample Id: 583957-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.99	250	265	106	261	104	90-110	2	20	mg/kg	04.28.18 02:22	

Analytical Method: Chloride by EPA 300

Seq Number: 3048260

Parent Sample Id: 583547-036

Matrix: Soil

MS Sample Id: 583547-036 S

Prep Method: E300P

Date Prep: 04.28.18

MSD Sample Id: 583547-036 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.95	248	238	96	243	98	90-110	2	20	mg/kg	04.28.18 11:47	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: Chloride by EPA 300

Seq Number: 3048260

Parent Sample Id: 583547-045

Matrix: Soil

MS Sample Id: 583547-045 S

Prep Method: E300P

Date Prep: 04.28.18

MSD Sample Id: 583547-045 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.99	250	240	96	246	98	90-110	2	20	mg/kg	04.28.18 13:11	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3048340

MB Sample Id: 7643668-1-BLK

Matrix: Solid

LCS Sample Id: 7643668-1-BKS

Prep Method: TX1005P

Date Prep: 04.27.18

LCSD Sample Id: 7643668-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1050	105	1150	115	70-135	9	20	mg/kg	04.28.18 03:43	
Diesel Range Organics (DRO)	<15.0	1000	1060	106	1140	114	70-135	7	20	mg/kg	04.28.18 03:43	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		122		126		70-135	%	04.28.18 03:43
o-Terphenyl	105		124		129		70-135	%	04.28.18 03:43

Analytical Method: TPH By SW8015 Mod

Seq Number: 3048345

MB Sample Id: 7643676-1-BLK

Matrix: Solid

LCS Sample Id: 7643676-1-BKS

Prep Method: TX1005P

Date Prep: 04.28.18

LCSD Sample Id: 7643676-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	992	99	1010	101	70-135	2	20	mg/kg	04.28.18 15:22	
Diesel Range Organics (DRO)	<15.0	1000	1010	101	1020	102	70-135	1	20	mg/kg	04.28.18 15:22	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		112		117		70-135	%	04.28.18 15:22
o-Terphenyl	105		112		115		70-135	%	04.28.18 15:22

Analytical Method: TPH By SW8015 Mod

Seq Number: 3048340

Parent Sample Id: 583730-001

Matrix: Soil

MS Sample Id: 583730-001 S

Prep Method: TX1005P

Date Prep: 04.27.18

MSD Sample Id: 583730-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	999	1110	111	1150	115	70-135	4	20	mg/kg	04.28.18 05:01	
Diesel Range Organics (DRO)	<15.0	999	1120	112	1150	115	70-135	3	20	mg/kg	04.28.18 05:01	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		117		70-135	%	04.28.18 05:01
o-Terphenyl	116		116		70-135	%	04.28.18 05:01

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$ LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: TPH By SW8015 Mod

Seq Number: 3048345

Parent Sample Id: 583957-001

Matrix: Soil

MS Sample Id: 583957-001 S

Prep Method: TX1005P

Date Prep: 04.28.18

MSD Sample Id: 583957-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1080	108	1060	106	70-135	2	20	mg/kg	04.28.18 16:42	
Diesel Range Organics (DRO)	<15.0	1000	1100	110	1100	110	70-135	0	20	mg/kg	04.28.18 16:42	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	114		117		70-135	%	04.28.18 16:42
o-Terphenyl	108		109		70-135	%	04.28.18 16:42

Analytical Method: BTEX by EPA 8021B

Seq Number: 3048375

MB Sample Id: 7643698-1-BLK

Matrix: Solid

LCS Sample Id: 7643698-1-BKS

Prep Method: SW5030B

Date Prep: 04.28.18

LCSD Sample Id: 7643698-1-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	0.108	108	0.111	111	70-130	3	35	mg/kg	04.28.18 08:41	
Toluene	<0.00200	0.0998	0.103	103	0.107	107	70-130	4	35	mg/kg	04.28.18 08:41	
Ethylbenzene	<0.00200	0.0998	0.109	109	0.112	112	70-130	3	35	mg/kg	04.28.18 08:41	
m,p-Xylenes	<0.00399	0.200	0.224	112	0.231	115	70-130	3	35	mg/kg	04.28.18 08:41	
o-Xylene	<0.00200	0.0998	0.112	112	0.115	115	70-130	3	35	mg/kg	04.28.18 08:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		105		99		70-130	%	04.28.18 08:41
4-Bromofluorobenzene	88		95		96		70-130	%	04.28.18 08:41

Analytical Method: BTEX by EPA 8021B

Seq Number: 3048379

MB Sample Id: 7643699-1-BLK

Matrix: Solid

LCS Sample Id: 7643699-1-BKS

Prep Method: SW5030B

Date Prep: 04.28.18

LCSD Sample Id: 7643699-1-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	0.104	104	0.105	104	70-130	1	35	mg/kg	04.28.18 18:19	
Toluene	<0.00200	0.0998	0.0998	100	0.101	100	70-130	1	35	mg/kg	04.28.18 18:19	
Ethylbenzene	<0.00200	0.0998	0.103	103	0.104	103	70-130	1	35	mg/kg	04.28.18 18:19	
m,p-Xylenes	<0.00399	0.200	0.212	106	0.215	107	70-130	1	35	mg/kg	04.28.18 18:19	
o-Xylene	<0.00200	0.0998	0.108	108	0.111	110	70-130	3	35	mg/kg	04.28.18 18:19	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		103		103		70-130	%	04.28.18 18:19
4-Bromofluorobenzene	95		90		90		70-130	%	04.28.18 18:19

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$ LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: BTEX by EPA 8021B

Seq Number: 3048431

MB Sample Id: 7643736-1-BLK

Matrix: Solid

LCS Sample Id: 7643736-1-BKS

Prep Method: SW5030B

Date Prep: 04.30.18

LCSD Sample Id: 7643736-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.114	113	0.116	116	70-130	2	35	mg/kg	04.30.18 18:58	
Toluene	<0.00201	0.101	0.109	108	0.110	110	70-130	1	35	mg/kg	04.30.18 18:58	
Ethylbenzene	<0.00201	0.101	0.110	109	0.112	112	70-130	2	35	mg/kg	04.30.18 18:58	
m,p-Xylenes	<0.00402	0.201	0.228	113	0.229	114	70-130	0	35	mg/kg	04.30.18 18:58	
o-Xylene	<0.00201	0.101	0.112	111	0.112	112	70-130	0	35	mg/kg	04.30.18 18:58	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		105		103		70-130	%	04.30.18 18:58
4-Bromofluorobenzene	96		100		98		70-130	%	04.30.18 18:58

Analytical Method: BTEX by EPA 8021B

Seq Number: 3048375

Parent Sample Id: 583957-001

Matrix: Soil

MS Sample Id: 583957-001 S

Prep Method: SW5030B

Date Prep: 04.28.18

MSD Sample Id: 583957-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0895	90	0.102	102	70-130	13	35	mg/kg	04.28.18 09:19	
Toluene	<0.00199	0.0994	0.0859	86	0.0979	98	70-130	13	35	mg/kg	04.28.18 09:19	
Ethylbenzene	<0.00199	0.0994	0.0892	90	0.102	102	70-130	13	35	mg/kg	04.28.18 09:19	
m,p-Xylenes	<0.00398	0.199	0.184	92	0.207	104	70-130	12	35	mg/kg	04.28.18 09:19	
o-Xylene	<0.00199	0.0994	0.0946	95	0.104	104	70-130	9	35	mg/kg	04.28.18 09:19	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		107		70-130	%	04.28.18 09:19
4-Bromofluorobenzene	98		102		70-130	%	04.28.18 09:19

Analytical Method: BTEX by EPA 8021B

Seq Number: 3048379

Parent Sample Id: 583957-021

Matrix: Soil

MS Sample Id: 583957-021 S

Prep Method: SW5030B

Date Prep: 04.28.18

MSD Sample Id: 583957-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0994	100	0.101	101	70-130	2	35	mg/kg	04.28.18 18:58	
Toluene	<0.00200	0.0998	0.0793	79	0.0833	83	70-130	5	35	mg/kg	04.28.18 18:58	
Ethylbenzene	<0.00200	0.0998	0.0605	61	0.0693	69	70-130	14	35	mg/kg	04.28.18 18:58	X
m,p-Xylenes	<0.00399	0.200	0.118	59	0.135	67	70-130	13	35	mg/kg	04.28.18 18:58	X
o-Xylene	<0.00200	0.0998	0.0651	65	0.0706	71	70-130	8	35	mg/kg	04.28.18 18:58	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		107		70-130	%	04.28.18 18:58
4-Bromofluorobenzene	103		100		70-130	%	04.28.18 18:58

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$ LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
Momentum 36 SWD #001

Analytical Method: BTEX by EPA 8021B

Seq Number: 3048431

Parent Sample Id: 584210-009

Matrix: Soil

MS Sample Id: 584210-009 S

Prep Method: SW5030B

Date Prep: 04.30.18

MSD Sample Id: 584210-009 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	0.103	102	0.107	107	70-130	4	35	mg/kg	04.30.18 19:41	
Toluene	<0.00202	0.101	0.0969	96	0.101	101	70-130	4	35	mg/kg	04.30.18 19:41	
Ethylbenzene	<0.00202	0.101	0.0966	96	0.0997	100	70-130	3	35	mg/kg	04.30.18 19:41	
m,p-Xylenes	<0.00403	0.202	0.199	99	0.204	102	70-130	2	35	mg/kg	04.30.18 19:41	
o-Xylene	<0.00202	0.101	0.101	100	0.101	101	70-130	0	35	mg/kg	04.30.18 19:41	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		106		70-130	%	04.30.18 19:41
4-Bromofluorobenzene	99		100		70-130	%	04.30.18 19:41

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 $\text{Log Diff.} = \text{Log}(\text{Sample Duplicate}) - \text{Log}(\text{Original Sample})$

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

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

Final 1.000

CHAIN OF CUSTODY

Page 4 of 5

Setting the Standard since 1990

Stafford, Texas (281-240-4200)

Dallas Texas (214-902-0300)

San Antonio, Texas (210-509-3334)

Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

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Xenco Quote #

Xenco Job #

156957

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes										
Company Name / Branch: COG Operating, LLC				Project Name/Number: Momentum 36 SWD #001																		
Company Address: 2407 Pecos Ave. Artesia NM 88210				Project Location:																		
Email: slhitchcock@concho.com Phone No: 575-703-6475 dneel2@concho.com; cgray@concho.com; thaskell@concho.com				Lea County, NM COG Operating, LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland TX, 79701																		
Project Contact: Dakota Neel				Invoice To:																		
Samplers Name:				PO Number:																		
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MeOH	Other	TPH EXTENDED (EPA8015M)	BTEX (EPA 8021B)	CHLORIDES (EPA 300)	Field Comments				
1	SW-17		4/25/18	10:55	S	1									X	X	X					
2	SW-18			11:00	S	1									X	X	X					
3	SW-19			11:05	S	1									X	X	X					
4	SW-20			11:10	S	1									X	X	X					
5	BTM-3	1'		11:15	S	1									X	X	X					
6	BTM-4	1'		11:20	S	1									X	X	X					
7	BTM-5	1'		11:25	S	1									X	X	X					
8	T6/T5 TRANSITION			11:30	S	1									X	X	X					
9	T5/T3 TRANSITION			11:35	S	1									X	X	X					
10	T3/T2 TRANSITION			11:40	S	1									X	X	X					
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)				Temp: 4.0°C IR ID: R-8						
Next Day EMERGENCY				☐ 7 Day TAT				☐ Level III Std QC+ Forms				☐ TRRP Level IV				CF: (0-6: -0.2°C)						
2 Day EMERGENCY				☐ Contract TAT				☐ Level 3 (CLP Forms)				☐ UST / RG 411				(6-23: +0.2°C)						
☐ 3 Day EMERGENCY								☐ TRRP Checklist								Corrected Temp: 3.8°C						
TAT Starts Day received by Lab, if received by 5:00 pm															FED							
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																						
Relinquished by Sampler:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		Date Time:				
1		4-26-18 1:30 PM		Dakota Neel		4-26-18 1:30 PM		Dakota Neel		4-26-18 3:08 PM		Dakota Neel		4-26-18 3:08 PM		Dakota Neel		4-26-18 3:08 PM				
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		Date Time:				
3		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM				
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		Date Time:				
5		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM				
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		Date Time:				
5		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM				
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		Date Time:				
5		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM				
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		Date Time:				
5		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM				
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:		Date Time:				
5		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM		Dakota Neel		4-27-18 10:08 AM				
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received										

Notice: Signature of this document and return of samples constitutes a valid purchase order from client company to Xerox, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xerox will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of 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 analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

CHAIN OF CUSTODY

Page 3 of 3

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

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Phoenix, Arizona (480-355-0900)

www.xenico.com										Xenico Quote #		Xenico Job #		005901	
Client / Reporting Information				Project Information				Analytical Information				Matrix Codes			
Company Name / Branch: COG Operating, LLC Company Address: 2407 Pecos Ave. Artesia NM 88210				Project Name/Number: Momentum 36 SMO #001											
Email: slhitehcock@concho.com Phone No: 575-703-6475 dhneel2@concho.com; cgray@concho.com; thaskell@concho.com				Project Location: Lea County, NM COG Operating, LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland Tx. 79701											
Project Contact: Dakota Neel				Invoice To: COG Operating, LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland Tx. 79701											
Samplers Name:				PO Number:											
No.				Field ID / Point of Collection											
				Sample Depth											
1				78677 TRANSITION											
2															
3															
4															
5															
6															
7															
8															
9															
10															
Turnaround Time (Business days)															
Same Day TAT															
Next Day EMERGENCY															
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Relinquished by Sampler:				Date Time:				Received By:				Date Time:			
1				4-25-18 11:30 AM				1				4-25-18 3:00 PM			
Relinquished by:				Date Time:				Received By:				Date Time:			
3				4				3				4-27-18 10:28 AM			
Relinquished by:				Date Time:				Received By:				Date Time:			
5				5				5				5			
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY															
Level II Std QC															
Level III Std QC+ Forms															
Level 3 (CLP Forms)															
TRRP Checklist															
Level IV (Full Data Pkg/raw data)															
TRRP Level IV															
UST / RG-411															
Temp: 40.0°C															
CF: (0-6: -0.2°C)															
(6-23: +0.2°C)															
Corrected Temp: 3.8°C															
IR ID: R-8															
FED															
Notes:															
TPH EXTENDED (EPA8015M)															
BTX (EPA 8021B)															
CHLORIDES (EPA 300)															
Field Comments															
W = Water															
S = Soil/Sed/Solid															
GW = Ground Water															
DW = Drinking Water															
P = Product															
SW = Surface water															
SL = Sludge															
OW = Ocean/Sea Water															
WI = Wipe															
O = Oil															
WW = Waste Water															
A = Air															



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 04/27/2018 10:28:00 AM

Work Order #: 583957

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)?	3.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 04/27/2018

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 04/27/2018