

## 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:

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

### Official Communication:

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

### Ranking Criteria

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

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



January 11, 2018

NMOCD approves of the  
proposed confirmation sample  
locations for 1RP-4726.

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

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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 BLM seed mixture 2 (sandy Sites) 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 BLM 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.

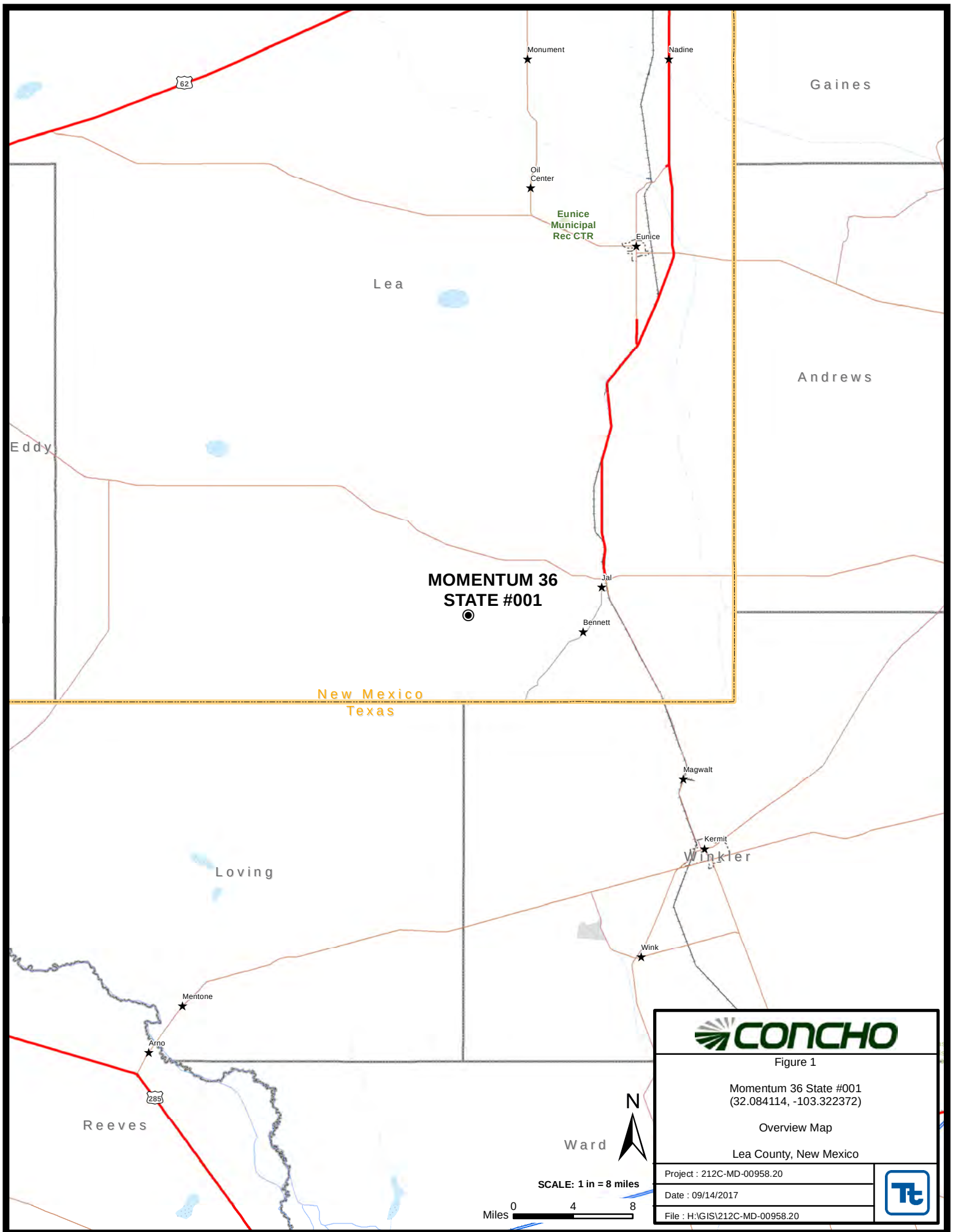
Respectfully submitted,  
TETRA TECH

Clair Gonzales,  
Geologist

Ike Tavaréz,  
Senior Project Manager, P.G.

cc: Robert McNeill – COG  
Dakota Neel – COG  
Rebecca Haskell – COG  
Amber Groves - SLO

## Figures





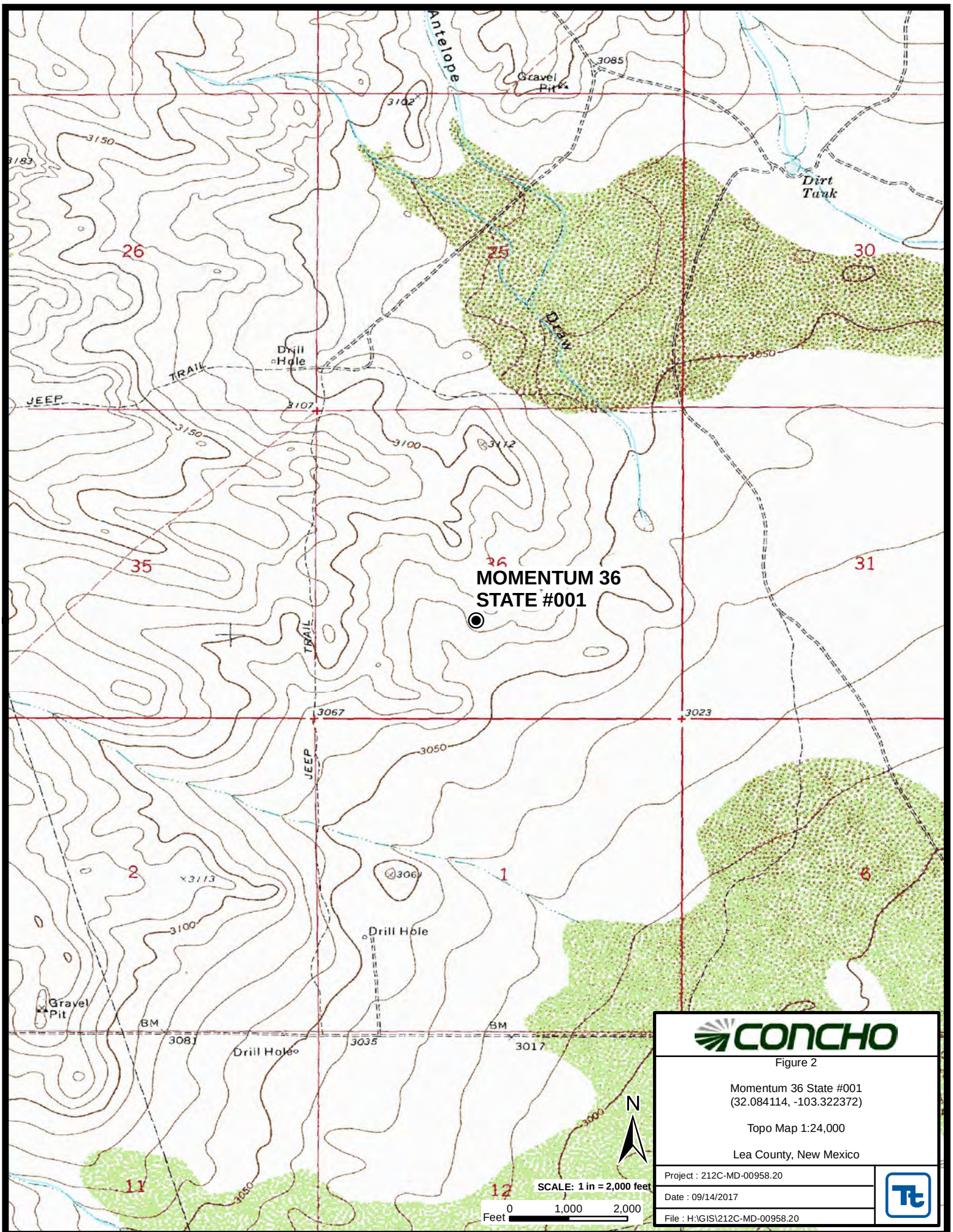


Figure 2

Momentum 36 State #001  
(32.084114, -103.322372)

Topo Map 1:24,000

Lea County, New Mexico

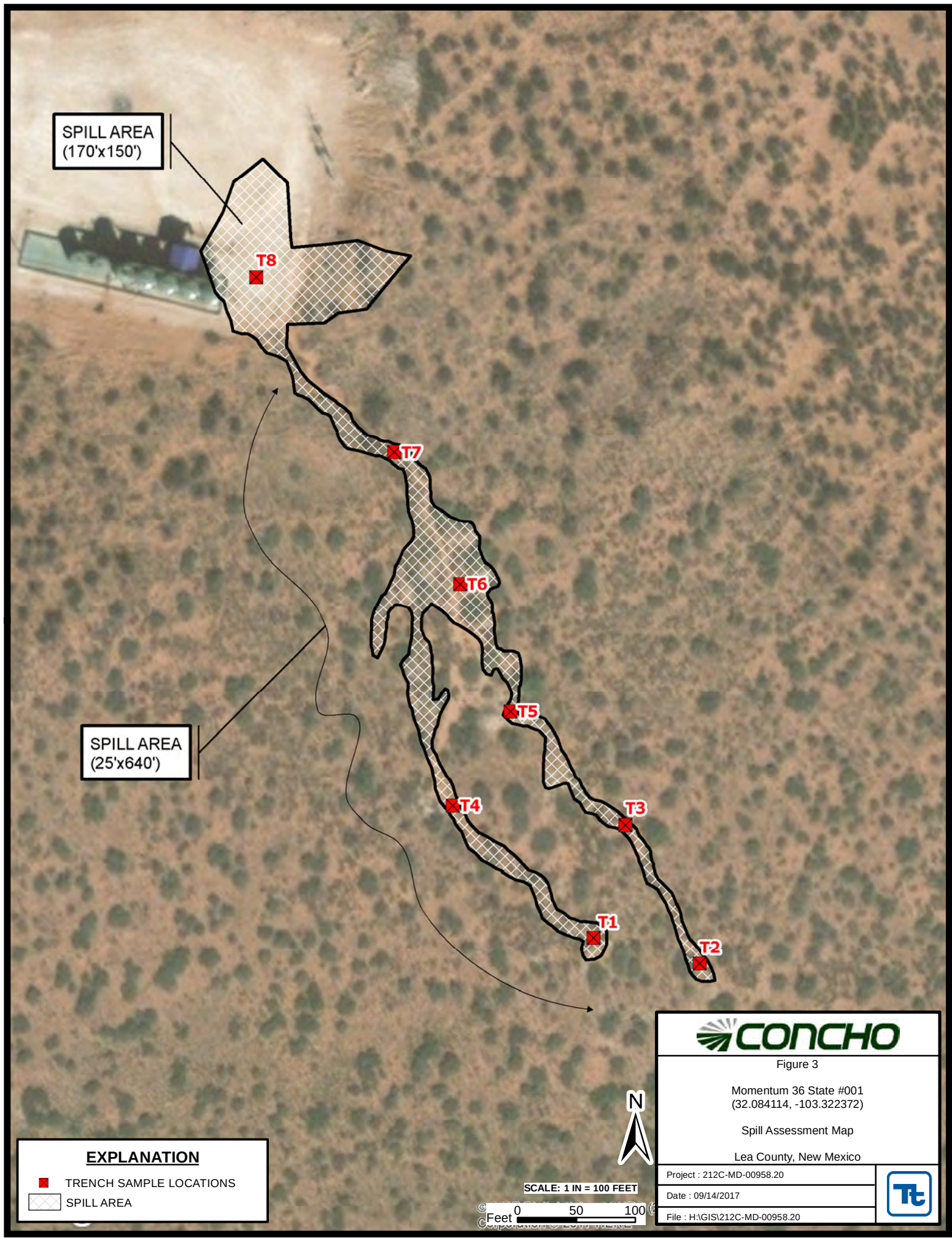
Project : 212C-MD-00958.20

Date : 09/14/2017

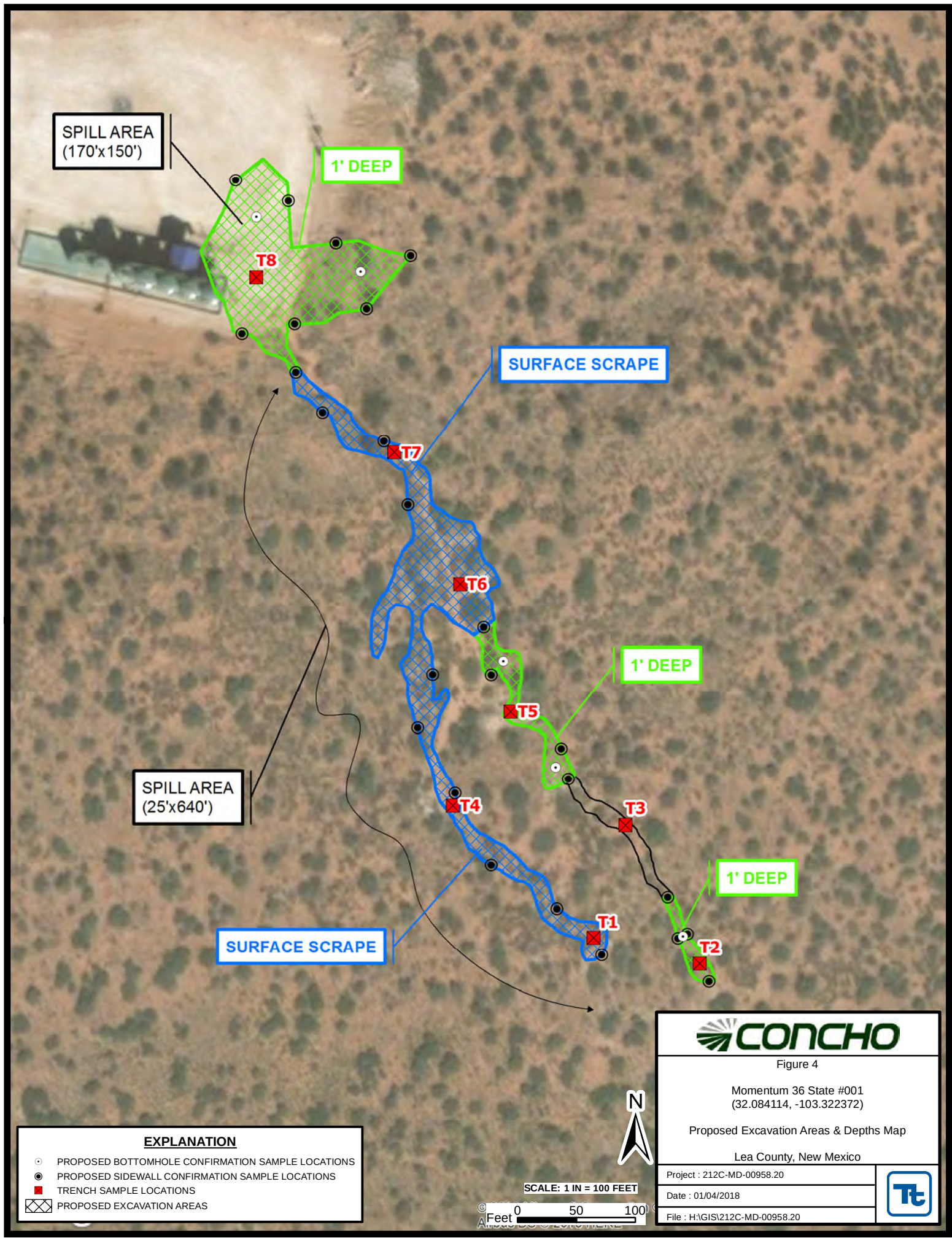
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SPILL AREA  
(170'x150')

1' DEEP

SURFACE SCRAPE

SPILL AREA  
(25'x640')

1' DEEP

SURFACE SCRAPE

1' DEEP

**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 |                 |                 |                      |                |                    |                  |
| <b>T-7</b> | 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              |
| <b>T-8</b> | 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 |
|----------------------|----------------------|----------------------|

#### LOCATION OF RELEASE

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

Latitude 32.0841141 Longitude -103.3223724

#### NATURE OF RELEASE

|                                                                                                                                          |                                                       |                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------|
| Type of Release:<br>Oil and Produced Water                                                                                               | Volume of Release:<br>2 bbls Oil & 128 bbls PW        | Volume Recovered:<br>1.5 bbls Oil & 50 bbls PW       |
| Source of Release:<br>Pump                                                                                                               | Date and Hour of Occurrence:<br>June 9, 2017 10:00 am | Date and Hour of Discovery:<br>June 9, 2017 10:00 am |
| Was Immediate Notice Given?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required | If YES, To Whom?<br>Ms. Yu - NMOCD / Ms. Groves - SLO |                                                      |
| By Whom? Dakota Neel                                                                                                                     | Date and Hour: June 9, 2017 10:57 am                  |                                                      |
| Was a Watercourse Reached?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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>                                            | <b>OIL CONSERVATION DIVISION</b>      |                  |
| Printed Name: Rebecca Haskell                                                | Approved by Environmental Specialist: |                  |
| Title: Senior HSE Coordinator                                                | Approval Date:                        | Expiration Date: |
| E-mail Address: <a href="mailto:rhaskell@concho.com">rhaskell@concho.com</a> | Conditions of Approval:               |                  |
| Date: June 12, 2017 Phone: 432-683-7443                                      | Attached <input type="checkbox"/>     |                  |

\* 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 |
|--------------------------|----------|-----------|--------|------|------|-----|-----|-----|-----|--------|----------|-----------|------------|--------------|
| <a href="#">C 02296</a>  |          | CUB       | LE     | 1    | 3    | 2   | 18  | 25S | 35E | 650398 | 3556305* | 300       | 230        | 70           |
| <a href="#">C 02297</a>  |          | CUB       | LE     | 2    | 2    | 1   | 21  | 25S | 35E | 653436 | 3555140* | 300       | 230        | 70           |
| <a href="#">C 02298</a>  |          | CUB       | LE     | 2    | 2    | 1   | 21  | 25S | 35E | 653436 | 3555140* | 250       | 205        | 45           |
| <a href="#">C 02388</a>  |          |           | LE     |      |      | 3   | 05  | 25S | 35E | 651467 | 3558832* | 180       | 165        | 15           |
| <a href="#">CP 00624</a> |          | 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



BLM SERIAL #:

COMPANY REFERENCE:

### 3.3 Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

| <u>Species</u>                                      | <u>lb/acre</u> |
|-----------------------------------------------------|----------------|
| Sand dropseed ( <i>Sporobolus cryptandrus</i> )     | 1.0            |
| Sand love grass ( <i>Eragrostis trichodes</i> )     | 1.0            |
| Plains bristlegrass ( <i>Setaria macrostachya</i> ) | 2.0            |

\*Pounds of pure live seed: Pounds of seed x percent purity x percent germination = pounds pure live seed

## 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

| Analysis Requested                | Lab Id:    | 557797-001       | 557797-002       | 557797-003       | 557797-004       | 557797-005       | 557797-006       |
|-----------------------------------|------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                   | Field Id:  | T1-Surf          | T1-1'            | T1-2'            | T1-3'            | T1-4'            | T1-6'            |
|                                   | Depth:     |                  | 1- ft            | 2- ft            | 3- ft            | 4- ft            | 6- ft            |
|                                   | Matrix:    | SOIL             | SOIL             | SOIL             | SOIL             | SOIL             | SOIL             |
|                                   | Sampled:   | 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                 | Extracted: | 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  |
|                                   | Analyzed:  | 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  |
|                                   | 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 | <0.00202 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 | 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 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  |
|                                   | Units/RL:  | 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                 | 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 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  |
|                                   | Units/RL:  | 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       |

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

| <i>Analysis Requested</i>                | <i>Lab Id:</i>    | 557797-007       | 557797-008       | 557797-009       | 557797-010       | 557797-011      | 557797-012       |
|------------------------------------------|-------------------|------------------|------------------|------------------|------------------|-----------------|------------------|
|                                          | <i>Field Id:</i>  | T1-8'            | T2-Surf'         | T2-1'            | T2-2'            | T2-3'           | T2-4'            |
|                                          | <i>Depth:</i>     | 8- ft            |                  | 1- ft            | 2- ft            | 3- ft           | 4- 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 10:00 | Jul-12-17 10:00  |
| <b>BTEX by EPA 8021B</b>                 | <i>Extracted:</i> | 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  |
|                                          | <i>Analyzed:</i>  | 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  |
|                                          | <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 | <0.00200 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    |
| <b>Inorganic Anions by EPA 300/300.1</b> | <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 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  |
|                                          | <i>Units/RL:</i>  | 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       |
| <b>TPH By SW8015 Mod</b>                 | <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 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  |
|                                          | <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)        |                   | <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

| Analysis Requested                | Lab Id:    | 557797-031      | 557797-032      | 557797-033      | 557797-034      | 557797-035      | 557797-036      |
|-----------------------------------|------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                   | Field Id:  | T5-4'           | T5-6'           | T5-8'           | T6-Surf         | T6-1'           | T6-2'           |
|                                   | Depth:     | 4- ft           | 6- ft           | 8- ft           |                 | 1- ft           | 2- 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 11:00 | Jul-12-17 11:00 |
| 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-21-17 15:30 |
|                                   | Analyzed:  | 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 |
|                                   | Units/RL:  | mg/kg           |                 | mg/kg           | mg/kg           | mg/kg           | mg/kg           |
|                                   |            | RL              |                 | RL              | RL              | RL              | RL              |
| Benzene                           |            | <0.00200        | 0.00200         | <0.00200        | 0.00200         | <0.00199        | 0.00199         |
| Toluene                           |            | <0.00200        | 0.00200         | <0.00200        | 0.00200         | <0.00199        | 0.00199         |
| Ethylbenzene                      |            | <0.00200        | 0.00200         | <0.00200        | 0.00200         | 0.0126          | 0.00199         |
| m,p-Xylenes                       |            | <0.00400        | 0.00400         | <0.00401        | 0.00401         | 0.203           | 0.00398         |
| o-Xylene                          |            | <0.00200        | 0.00200         | <0.00200        | 0.00200         | 0.123           | 0.00199         |
| Total Xylenes                     |            | <0.00200        | 0.00200         | <0.00200        | 0.00200         | 0.326           | 0.00199         |
| Total BTEX                        |            | <0.00200        | 0.00200         | <0.00200        | 0.00200         | 0.339           | 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 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 |
|                                   | Units/RL:  | mg/kg           | mg/kg           | mg/kg           | mg/kg           | mg/kg           | mg/kg           |
|                                   |            | RL              | RL              | RL              | RL              | RL              | 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                 | 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 06:53 |                 | Jul-19-17 07:55 | Jul-19-17 08:16 | Jul-19-17 08:37 | Jul-19-17 08:58 |
|                                   | Units/RL:  | mg/kg           |                 | mg/kg           | mg/kg           | mg/kg           | mg/kg           |
|                                   |            | RL              |                 | RL              | RL              | RL              | RL              |
| Gasoline Range Hydrocarbons (GRO) |            | <15.0           | 15.0            | <15.0           | 15.0            | 274             | 15.0            |
| Diesel Range Organics (DRO)       |            | <15.0           | 15.0            | <15.0           | 15.0            | 1120            | 15.0            |
| Oil Range Hydrocarbons (ORO)      |            | <15.0           | 15.0            | <15.0           | 15.0            | 153             | 15.0            |
| Total TPH                         |            | <15.0           | 15.0            | <15.0           | 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.

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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:    | 557797-037       | 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         |

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

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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  |
| <b>BTEX by EPA 8021B</b>                 | <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 |
| <b>Inorganic Anions by EPA 300/300.1</b> | <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        |
| <b>TPH By SW8015 Mod</b>                 | <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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*Certified and approved by numerous States and Agencies.*

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

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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

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### **Sample receipt non conformances and comments:**

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#### **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    | <b>0.00723</b> | 0.00201 | mg/kg | 07.21.17 13.06 |                | 1    |
| Ethylbenzene         | 100-41-4    | <b>0.0572</b>  | 0.00201 | mg/kg | 07.21.17 13.06 |                | 1    |
| m,p-Xylenes          | 179601-23-1 | <b>0.301</b>   | 0.00402 | mg/kg | 07.21.17 13.06 |                | 1    |
| o-Xylene             | 95-47-6     | <b>0.184</b>   | 0.00201 | mg/kg | 07.21.17 13.06 |                | 1    |
| Total Xylenes        | 1330-20-7   | <b>0.485</b>   | 0.00201 | mg/kg | 07.21.17 13.06 |                | 1    |
| Total BTEX           |             | <b>0.549</b>   | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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

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 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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

1-Chlorooctane

o-Terphenyl

| Cas Number | % Recovery | Units | Limits | Analysis Date  | Flag |
|------------|------------|-------|--------|----------------|------|
| 111-85-3   | 111        | %     | 70-135 | 07.18.17 20.36 |      |
| 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   |
| <b>Toluene</b>       | 108-88-3          | <b>0.0333</b>     | 0.00199      | mg/kg         | 07.21.17 15.40       |             | 1   |
| <b>Ethylbenzene</b>  | 100-41-4          | <b>0.0801</b>     | 0.00199      | mg/kg         | 07.21.17 15.40       |             | 1   |
| <b>m,p-Xylenes</b>   | 179601-23-1       | <b>0.103</b>      | 0.00398      | mg/kg         | 07.21.17 15.40       |             | 1   |
| <b>o-Xylene</b>      | 95-47-6           | <b>0.169</b>      | 0.00199      | mg/kg         | 07.21.17 15.40       |             | 1   |
| <b>Total Xylenes</b> | 1330-20-7         | <b>0.272</b>      | 0.00199      | mg/kg         | 07.21.17 15.40       |             | 1   |
| <b>Total BTEX</b>    |                   | <b>0.385</b>      | 0.00199      | mg/kg         | 07.21.17 15.40       |             | 1   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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 |
|----------------------|-------------------|-------------------|--------------|---------------|----------------------|-------------|-----|
| <b>Benzene</b>       | 71-43-2           | <b>0.00913</b>    | 0.00202      | mg/kg         | 07.22.17 02.13       |             | 1   |
| <b>Toluene</b>       | 108-88-3          | <b>1.35</b>       | 0.0497       | mg/kg         | 07.25.17 08.18       | D           | 25  |
| <b>Ethylbenzene</b>  | 100-41-4          | <b>2.82</b>       | 0.0497       | mg/kg         | 07.25.17 08.18       | D           | 25  |
| <b>m,p-Xylenes</b>   | 179601-23-1       | <b>8.07</b>       | 0.0994       | mg/kg         | 07.25.17 08.18       | D           | 25  |
| <b>o-Xylene</b>      | 95-47-6           | <b>3.90</b>       | 0.0497       | mg/kg         | 07.25.17 08.18       | D           | 25  |
| <b>Total Xylenes</b> | 1330-20-7         | <b>12.0</b>       | 0.0497       | mg/kg         | 07.25.17 08.18       |             | 25  |
| <b>Total BTEX</b>    |                   | <b>16.1</b>       | 0.00202      | mg/kg         | 07.25.17 08.18       |             | 25  |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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

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     | <0.00201   | 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 | <b>0.00519</b> | 0.00399 | mg/kg | 07.21.17 14.22 |                | 1    |
| o-Xylene             | 95-47-6     | <b>0.00431</b> | 0.00200 | mg/kg | 07.21.17 14.22 |                | 1    |
| Total Xylenes        | 1330-20-7   | <b>0.00950</b> | 0.00200 | mg/kg | 07.21.17 14.22 |                | 1    |
| Total BTEX           |             | <b>0.00950</b> | 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   |
| <b>Diesel Range Organics (DRO)</b> | C10C28DRO  | <b>40.4</b> | 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   |
| <b>Total TPH</b>                   | PHC635     | <b>40.4</b> | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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

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 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Toluene</b>       | 108-88-3          | <b>0.133</b>      | 0.00199      | mg/kg         | 07.25.17 11.27       |             | 1   |
| <b>Ethylbenzene</b>  | 100-41-4          | <b>0.222</b>      | 0.00199      | mg/kg         | 07.25.17 11.27       |             | 1   |
| <b>m,p-Xylenes</b>   | 179601-23-1       | <b>42.7</b>       | 0.402        | mg/kg         | 07.25.17 18.27       | D           | 100 |
| <b>o-Xylene</b>      | 95-47-6           | <b>0.396</b>      | 0.00199      | mg/kg         | 07.25.17 11.27       |             | 1   |
| <b>Total Xylenes</b> | 1330-20-7         | <b>43.1</b>       | 0.00199      | mg/kg         | 07.25.17 18.27       |             | 100 |
| <b>Total BTEX</b>    |                   | <b>43.5</b>       | 0.00199      | mg/kg         | 07.25.17 18.27       |             | 100 |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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    | <b>0.0151</b> | 0.00199 | mg/kg | 07.21.17 03.59 |                | 1    |
| m,p-Xylenes          | 179601-23-1 | <b>0.0876</b> | 0.00398 | mg/kg | 07.21.17 03.59 |                | 1    |
| o-Xylene             | 95-47-6     | <b>0.0606</b> | 0.00199 | mg/kg | 07.21.17 03.59 |                | 1    |
| Total Xylenes        | 1330-20-7   | <b>0.148</b>  | 0.00199 | mg/kg | 07.21.17 03.59 |                | 1    |
| Total BTEX           |             | <b>0.163</b>  | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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

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 | 278    | 4.88 | mg/kg | 07.21.17 21.58 |      | 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     | 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 |
|----------------------|-------------------|-------------------|--------------|---------------|----------------------|-------------|-----|
| <b>Benzene</b>       | 71-43-2           | <b>0.00266</b>    | 0.00199      | mg/kg         | 07.22.17 10.22       |             | 1   |
| <b>Toluene</b>       | 108-88-3          | <b>0.313</b>      | 0.00199      | mg/kg         | 07.22.17 10.22       |             | 1   |
| <b>Ethylbenzene</b>  | 100-41-4          | <b>0.361</b>      | 0.00199      | mg/kg         | 07.22.17 10.22       |             | 1   |
| <b>m,p-Xylenes</b>   | 179601-23-1       | <b>18.8</b>       | 0.100        | mg/kg         | 07.25.17 08.37       | D           | 25  |
| <b>o-Xylene</b>      | 95-47-6           | <b>9.99</b>       | 0.0502       | mg/kg         | 07.25.17 08.37       | D           | 25  |
| <b>Total Xylenes</b> | 1330-20-7         | <b>28.8</b>       | 0.0502       | mg/kg         | 07.25.17 08.37       |             | 25  |
| <b>Total BTEX</b>    |                   | <b>29.5</b>       | 0.00199      | mg/kg         | 07.25.17 08.37       |             | 25  |
|                      |                   |                   |              |               |                      |             |     |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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

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     | <0.00200   | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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    | <b>0.0126</b> | 0.00199 | mg/kg | 07.22.17 15.22 |                | 1    |
| m,p-Xylenes          | 179601-23-1 | <b>0.203</b>  | 0.00398 | mg/kg | 07.22.17 15.22 |                | 1    |
| o-Xylene             | 95-47-6     | <b>0.123</b>  | 0.00199 | mg/kg | 07.22.17 15.22 |                | 1    |
| Total Xylenes        | 1330-20-7   | <b>0.326</b>  | 0.00199 | mg/kg | 07.22.17 15.22 |                | 1    |
| Total BTEX           |             | <b>0.339</b>  | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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'**  
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: 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 | 13.1   | 4.92 | mg/kg | 07.21.17 23.53 |      | 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 09.38       | U           | 1   |
| <b>Diesel Range Organics (DRO)</b> | 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   |
| <b>Total TPH</b>                   | PHC635            | 26.7              | 14.9         | mg/kg         | 07.19.17 09.38       |             | 1   |
| <b>Surrogate</b>                   | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>m,p-Xylenes</b>   | 179601-23-1       | <b>0.00421</b>    | 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   |
| <b>Total Xylenes</b> | 1330-20-7         | <b>0.00421</b>    | 0.00202      | mg/kg         | 07.22.17 12.34       |             | 1   |
| <b>Total BTEX</b>    |                   | <b>0.00421</b>    | 0.00202      | mg/kg         | 07.22.17 12.34       |             | 1   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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    | <b>0.141</b> | 0.00199 | mg/kg | 07.22.17 13.48 |                | 1    |
| m,p-Xylenes          | 179601-23-1 | <b>8.45</b>  | 0.0806  | mg/kg | 07.25.17 07.59 | D              | 20   |
| o-Xylene             | 95-47-6     | <b>1.73</b>  | 0.0403  | mg/kg | 07.25.17 07.59 | D              | 20   |
| Total Xylenes        | 1330-20-7   | <b>10.2</b>  | 0.0403  | mg/kg | 07.25.17 07.59 |                | 20   |
| Total BTEX           |             | <b>10.3</b>  | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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 |      |



# 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: 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' Matrix: Soil Date Received: 07.17.17 11.45  
Lab Sample Id: 557797-046 Date Collected: 07.12.17 11.30 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 16.30 Basis: Wet Weight  
Seq Number: 3023088

| 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 Prep Method: TX1005P  
Tech: ARM % Moisture:  
Analyst: ARM Date Prep: 07.19.17 14.00 Basis: Wet Weight  
Seq Number: 3022909

| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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    | <b>0.00768</b> | 0.00201 | mg/kg  | 07.24.17 14.54 |      | 1   |
| Ethylbenzene         | 100-41-4    | <b>0.0734</b>  | 0.00201 | mg/kg  | 07.24.17 14.54 |      | 1   |
| m,p-Xylenes          | 179601-23-1 | <b>0.292</b>   | 0.00402 | mg/kg  | 07.24.17 14.54 |      | 1   |
| o-Xylene             | 95-47-6     | <b>0.169</b>   | 0.00201 | mg/kg  | 07.24.17 14.54 |      | 1   |
| Total Xylenes        | 1330-20-7   | <b>0.461</b>   | 0.00201 | mg/kg  | 07.24.17 14.54 |      | 1   |
| Total BTEX           |             | <b>0.542</b>   | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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      | Cas Number | % Recovery | Units | Limits | Analysis Date  | Flag |
|----------------|------------|------------|-------|--------|----------------|------|
| 1-Chlorooctane | 111-85-3   | 102        | %     | 70-135 | 07.19.17 21.10 |      |
| o-Terphenyl    | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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

1-Chlorooctane

o-Terphenyl

| Cas Number | % Recovery | Units | Limits | Analysis Date  | Flag |
|------------|------------|-------|--------|----------------|------|
| 111-85-3   | 101        | %     | 70-135 | 07.19.17 21.31 |      |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>                  | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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   |
| <b>Diesel Range Organics (DRO)</b> | C10C28DRO  | <b>69.3</b> | 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   |
| <b>Total TPH</b>                   | PHC635     | <b>69.3</b> | 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   |
| <b>Surrogate</b>     | <b>Cas Number</b> | <b>% Recovery</b> | <b>Units</b> | <b>Limits</b> | <b>Analysis Date</b> | <b>Flag</b> |     |
| 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 |

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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<br>Result | Spike<br>Amount | LCS<br>Result | LCS<br>%Rec | LCSD<br>Result | LCSD<br>%Rec | Limits | %RPD | RPD<br>Limit | Units | Analysis<br>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<br>%Rec   | MB<br>Flag      | LCS<br>%Rec   | LCS<br>Flag | LCSD<br>%Rec   | LCSD<br>Flag | Limits |      |              | Units | Analysis<br>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<br>Result | Spike<br>Amount | LCS<br>Result | LCS<br>%Rec | LCSD<br>Result | LCSD<br>%Rec | Limits | %RPD | RPD<br>Limit | Units | Analysis<br>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<br>%Rec   | MB<br>Flag      | LCS<br>%Rec   | LCS<br>Flag | LCSD<br>%Rec   | LCSD<br>Flag | Limits |      |              | Units | Analysis<br>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 |       |                |      |

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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 |

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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:<br>COG Operating LLC                     |  |                                |  | Project Name/Number:<br>Momentum 36 State #001                                                          |         |                             |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
| Company Address:<br>2407 PECOS Avenue Artesia NM 88210          |  |                                |  | Project Location:<br>Momentum 36 State                                                                  |         |                             |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
| Email:<br>alibh@concho.com dneel2@concho.com thaskel@concho.com |  |                                |  | Invoice To:<br>COG Operating LLC<br>Attn: Robert McNeill<br>600 W. Illinois<br>Midland TX 79701         |         |                             |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
| Project Contact: Aaron Lieb                                     |  |                                |  | PO Number:                                                                                              |         |                             |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
| Sampler's Name: Aaron Lieb                                      |  |                                |  |                                                                                                         |         |                             |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
| No.                                                             |  | Field ID / Point of Collection |  | Collection                                                                                              |         | Number of preserved bottles |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
|                                                                 |  |                                |  | Sample Depth                                                                                            | Date    | Time                        | Matrix | # of bottles                                     | HCl | NaOH/Zn Acetate | HNO3 | H2SO4                                                      | NaOH | NaHSO4 | MEOH | NONE |               |
| 1                                                               |  | T1-Suct                        |  | 1                                                                                                       | 7-12-17 | 9:30am                      | S      | 1                                                |     |                 |      |                                                            |      |        |      |      | TPH/ EXTENDED |
| 2                                                               |  | T1-1'                          |  | 2                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      | BTEX          |
| 3                                                               |  | T1-2'                          |  | 3                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      | Chloride      |
| 4                                                               |  | T1-3'                          |  | 4                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      |               |
| 5                                                               |  | T1-4'                          |  | 5                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      |               |
| 6                                                               |  | T1-6'                          |  | 6                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      |               |
| 7                                                               |  | T1-8'                          |  | 7                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      |               |
| 8                                                               |  | T2-Suct                        |  | 8                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      |               |
| 9                                                               |  | T2-1'                          |  | 9                                                                                                       |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      |               |
| 10                                                              |  | T2-2'                          |  | 10                                                                                                      |         |                             |        | 1                                                |     |                 |      |                                                            |      |        |      |      |               |
| Turnaround Time (Business days)                                 |  |                                |  | Data Deliverable Information                                                                            |         |                             |        | Notes:                                           |     |                 |      |                                                            |      |        |      |      |               |
| <input type="checkbox"/> Same Day TAT                           |  |                                |  | <input type="checkbox"/> 5 Day TAT                                                                      |         |                             |        | <input type="checkbox"/> Level II Std QC         |     |                 |      | <input type="checkbox"/> Level IV (Full Data Pkg raw data) |      |        |      |      |               |
| <input type="checkbox"/> Next Day EMERGENCY                     |  |                                |  | <input type="checkbox"/> 7 Day TAT                                                                      |         |                             |        | <input type="checkbox"/> Level III Std QC+ Forms |     |                 |      | <input type="checkbox"/> TRRP Level IV                     |      |        |      |      |               |
| <input type="checkbox"/> 2 Day EMERGENCY                        |  |                                |  | <input type="checkbox"/> Contract TAT                                                                   |         |                             |        | <input type="checkbox"/> Level 3 (CLP Forms)     |     |                 |      | <input type="checkbox"/> UST/ RG-411                       |      |        |      |      |               |
| <input type="checkbox"/> 3 Day EMERGENCY                        |  |                                |  |                                                                                                         |         |                             |        | <input type="checkbox"/> TRRP Checklist          |     |                 |      |                                                            |      |        |      |      |               |
| TAT Starts Day received by Lab, if received by 5:00 pm          |  |                                |  |                                                                                                         |         |                             |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
| Relinquished by Sampler:                                        |  |                                |  | SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY |         |                             |        |                                                  |     |                 |      |                                                            |      |        |      |      |               |
| Date Time:                                                      |  |                                |  | Received By:                                                                                            |         |                             |        | Date Time:                                       |     |                 |      | Received By:                                               |      |        |      |      |               |
| 1                                                               |  |                                |  | 1                                                                                                       |         |                             |        | 2                                                |     |                 |      | 2                                                          |      |        |      |      |               |
| Relinquished by:                                                |  |                                |  | Date Time:                                                                                              |         |                             |        | Relinquished By:                                 |     |                 |      | Date Time:                                                 |      |        |      |      |               |
| 3                                                               |  |                                |  | 3                                                                                                       |         |                             |        | 4                                                |     |                 |      | 4                                                          |      |        |      |      |               |
| Relinquished by:                                                |  |                                |  | Date Time:                                                                                              |         |                             |        | Received By:                                     |     |                 |      | Date Time:                                                 |      |        |      |      |               |
| 5                                                               |  |                                |  | 5                                                                                                       |         |                             |        | 5                                                |     |                 |      | 5                                                          |      |        |      |      |               |

Temp: 1.4 IR ID: R-8

CF: (0-6: -0.2°C)

(6-23: +0.2°C)

Corrected Temp: 1.2

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

Field Comments

FED-EX / UPS: Tracking #

On Ice

Cooler Temp: 5.5°C

Thermo. Corr. Factor

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# CHAIN OF CUSTODY

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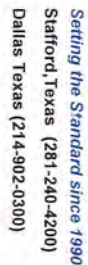
Xenco Job #

557797

| Client / Reporting Information                                                                                                                                                |                                |              |                 | Project Information                                                                             |        |              |     | Analytical Information |      |       |      | Matrix Codes |      |      |               |      |          |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------|-----------------|-------------------------------------------------------------------------------------------------|--------|--------------|-----|------------------------|------|-------|------|--------------|------|------|---------------|------|----------|----------------|
| Company Name / Branch:<br>COG Operating LLC                                                                                                                                   |                                |              |                 | Project Name/Number:<br>Momentum 36 State #001                                                  |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Company Address:<br>2407 PECOS Avenue Artesia NM 88210                                                                                                                        |                                |              |                 | Project Location:<br>Momentum 36 State                                                          |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Email:<br>aileb@concho.com dneel2@concho.com thaskel@concho.com                                                                                                               |                                |              |                 | Invoice To:<br>COG Operating LLC<br>Attn: Robert McNeill<br>600 W. Illinois<br>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            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 3                                                                                                                                                                             | T2-6'                          | 6            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 4                                                                                                                                                                             | T2-9'                          | 9            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 5                                                                                                                                                                             | T3-5'EF                        | 5            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 6                                                                                                                                                                             | T3-1'                          | 1            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 7                                                                                                                                                                             | T3-2'                          | 2            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 8                                                                                                                                                                             | T3-3'                          | 3            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 9                                                                                                                                                                             | T3-4'                          | 4            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| 10                                                                                                                                                                            | T3-6'                          | 6            |                 |                                                                                                 | 5      | 1            |     |                        |      |       |      |              |      |      | X             | X    | X        |                |
| Turnaround Time (Business days)                                                                                                                                               |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Data Deliverable Information                                                                                                                                                  |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Same Day TAT <input type="checkbox"/> 5 Day TAT <input type="checkbox"/> Level II Std QC <input type="checkbox"/> Level IV (Full Data Pkg /raw data) <input type="checkbox"/> |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Next Day EMERGENCY <input type="checkbox"/> 7 Day TAT <input type="checkbox"/> Level III Std QC+ Forms <input type="checkbox"/> TRRP Level IV <input type="checkbox"/>        |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| 2 Day EMERGENCY <input type="checkbox"/> Contract TAT <input type="checkbox"/> Level 3 (CLP Forms) <input type="checkbox"/> UST / RG-411 <input type="checkbox"/>             |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| 3 Day EMERGENCY <input type="checkbox"/> TRRP Checklist <input type="checkbox"/>                                                                                              |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| 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:                                                                                                                                                      |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Relinquished By: 1 Received By: 1 Date Time: 7-17-17 10:00                                                                                                                    |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Relinquished By: 2 Received By: 2 Date Time: 7-17-17 10:00                                                                                                                    |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Relinquished By: 3 Received By: 3 Date Time: 7-17-17 10:00                                                                                                                    |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Relinquished By: 4 Received By: 4 Date Time: 7-17-17 10:00                                                                                                                    |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Relinquished By: 5 Received By: 5 Date Time: 7-17-17 10:00                                                                                                                    |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Custody Seal #                                                                                                                                                                |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Preserved where applicable                                                                                                                                                    |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Temp: 1.4 IR ID: R-8                                                                                                                                                          |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| CF: (0-6: -0.2°C)                                                                                                                                                             |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| (6-23: +0.2°C)                                                                                                                                                                |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Corrected Temp: 1.2                                                                                                                                                           |                                |              |                 |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |

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Page 3 of 6

Phoenix, Arizona (480-355-0900)

557797

| Client / Reporting Information                                  |  |                                                        |  | Project Information                                                                             |  |                             |  | Analytical Information |  |        |  | Matrix Codes |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|-----------------------------------------------------------------|--|--------------------------------------------------------|--|-------------------------------------------------------------------------------------------------|--|-----------------------------|--|------------------------|--|--------|--|--------------|--|----------------|--|-----------------|--|------|--|-------|--|------|--|--------|--|------|--|------|--|---|--|
| Company Name / Branch:<br>COG Operating LLC                     |  |                                                        |  | Project Name/Number:<br>Momentum 36 State #001                                                  |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
| Company Address:<br>2407 PECOS AVENUE Artesia NM 88210          |  |                                                        |  | Project Location:<br>Momentum 36 Stat.                                                          |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
| Email:<br>alieb@concho.com dnee12@concho.com thaskel@concho.com |  |                                                        |  | Invoice To:<br>COG Operating LLC<br>Attn: Robert McNeill<br>600 W. Illinois<br>Midland TX 79701 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
| Project Contact: Aaron Lieb                                     |  |                                                        |  | PO Number:                                                                                      |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
| Sampler's Name: Aaron Lieb                                      |  |                                                        |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
| No.                                                             |  | Field ID / Point of Collection                         |  | Collection                                                                                      |  | Number of preserved bottles |  | TPH/ EXTENDED          |  | BTEX   |  | Chloride     |  | Field Comments |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  |                                                        |  | Sample Depth                                                                                    |  | Date                        |  | Time                   |  | Matrix |  | # of bottles |  | HCl            |  | NaOH/Zn Acetate |  | HNO3 |  | H2SO4 |  | NaOH |  | NaHSO4 |  | MeOH |  | NONE |  |   |  |
| 1                                                               |  | T4-5uct-1                                              |  | 1                                                                                               |  | 7/12/17                     |  | 10:30am                |  | 5      |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  | 1 |  |
| 2                                                               |  | T4-1                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 3                                                               |  | T4-2                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 4                                                               |  | T4-3                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 5                                                               |  | T4-4                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 6                                                               |  | T4-5                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 7                                                               |  | T5-1                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 8                                                               |  | T5-2                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 9                                                               |  | T5-3                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
| 10                                                              |  | T5-3                                                   |  | 1                                                                                               |  |                             |  |                        |  |        |  | 1            |  | 1              |  | 1               |  | 1    |  | 1     |  | 1    |  | 1      |  | 1    |  | 1    |  |   |  |
|                                                                 |  | Turnaround Time (Business days)                        |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Same Day TAT                                           |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Next Day EMERGENCY                                     |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | 2 Day EMERGENCY                                        |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | 3 Day EMERGENCY                                        |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | TAT Starts Day received by Lab, if received by 5:00 pm |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by Sampler:                               |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  |                                                                                                 |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |
|                                                                 |  | Relinquished by:                                       |  | </                                                                                              |  |                             |  |                        |  |        |  |              |  |                |  |                 |  |      |  |       |  |      |  |        |  |      |  |      |  |   |  |

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| Client / Reporting Information                                                                                                                                                 |                                |              |         | Project Information                                                                             |        |              |     | Analytical Information |      |       |      | Matrix Codes |      |      |               |      |          |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------|---------|-------------------------------------------------------------------------------------------------|--------|--------------|-----|------------------------|------|-------|------|--------------|------|------|---------------|------|----------|----------------|
| Company Name / Branch:<br>COG Operating LLC                                                                                                                                    |                                |              |         | Project Name/Number:<br>Momentum 36 State #001                                                  |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Company Address:<br>2407 PECOS Avenue Artesia NM 88210                                                                                                                         |                                |              |         | Project Location:<br>Momentum 36 State                                                          |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Email:<br>aliebd@concho.com Phone No: 575-748-1553<br>dneel2@concho.com rhaskell@concho.com                                                                                    |                                |              |         | Invoice To:<br>COG Operating LLC<br>Attn: Robert McNeill<br>600 W. Illinois<br>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                                                                                                                                                                             |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Same Day TAT <input type="checkbox"/> 5 Day TAT <input type="checkbox"/> Level II Std QC <input type="checkbox"/> Level IV (Full Data Pkg / raw data) <input type="checkbox"/> |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Next Day EMERGENCY <input type="checkbox"/> 7 Day TAT <input type="checkbox"/> Level III Std QC+ Forms <input type="checkbox"/> TRRP Level IV <input type="checkbox"/>         |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| 2 Day EMERGENCY <input type="checkbox"/> Contract TAT <input type="checkbox"/> Level 3 (CLP Forms) <input type="checkbox"/> UST / RG-411 <input type="checkbox"/>              |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| 3 Day EMERGENCY <input type="checkbox"/> TRRP Checklist <input type="checkbox"/>                                                                                               |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| 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:                                                                                                                                                       |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Date Time: 1 Received By: 1                                                                                                                                                    |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Relinquished by: 1 Date Time: 7-17-17 Relinquished By: 2 Date Time: 7-17-17                                                                                                    |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| 3 Date Time: 7-17-17 10:00 Relinquished By: 3 Date Time: 7-17-17 Relinquished By: 4 Date Time: 7-17-17                                                                         |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Relinquished by: 5 Date Time: 7-17-17 10:00 Relinquished By: 5 Date Time: 7-17-17 Relinquished By: 6 Date Time: 7-17-17                                                        |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Custody Seal # 5                                                                                                                                                               |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Preserved where applicable                                                                                                                                                     |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |
| Cooler Temp. 5.5°C Thermo. Corr. Factor                                                                                                                                        |                                |              |         |                                                                                                 |        |              |     |                        |      |       |      |              |      |      |               |      |          |                |

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.





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# CHAIN OF CUSTODY

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Phoenix, Arizona (480-355-0900)

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Xenoco Quote #

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557797

| Client / Reporting Information                                   |                                |                                         |                 | Project Information                                                                             |        |              |     | Analytical Information |      |            |      | Matrix Codes |      |            |               |      |          |                     |
|------------------------------------------------------------------|--------------------------------|-----------------------------------------|-----------------|-------------------------------------------------------------------------------------------------|--------|--------------|-----|------------------------|------|------------|------|--------------|------|------------|---------------|------|----------|---------------------|
| Company Name / Branch:<br>COG Operating LLC                      |                                |                                         |                 | Project Name/Number:<br>Momentum 36 State #001                                                  |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| Company Address:<br>2407 PECOS Avenue Artesia NM 88210           |                                |                                         |                 | Project Location:<br>Momentum 36 State                                                          |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| Email:<br>alieb@concho.com dneelz@concho.com thaskell@concho.com |                                |                                         |                 | Invoice To:<br>COG Operating LLC<br>Attn: Robert McNeill<br>600 W. Illinois<br>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                                       |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            | X             | X    | X        |                     |
| 3                                                                | T8-6                           | 6                                       |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            | X             | X    | X        |                     |
| 4                                                                | T8-8                           | 8                                       |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            | X             | X    | X        |                     |
| 5                                                                |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| 6                                                                |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| 7                                                                |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| 8                                                                |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| 9                                                                |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| 10                                                               |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| Turnaround Time (Business days)                                  |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          |                     |
| <input type="checkbox"/> Same Day TAT                            |                                | <input type="checkbox"/> 5 Day TAT      |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          | Temp: 1.4           |
| <input type="checkbox"/> Next Day EMERGENCY                      |                                | <input type="checkbox"/> 7 Day TAT      |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          | IR ID: R-8          |
| <input type="checkbox"/> 2 Day EMERGENCY                         |                                | <input type="checkbox"/> Contract TAT   |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          | CF: (0-6: -0.2°C)   |
| <input type="checkbox"/> 3 Day EMERGENCY                         |                                | <input type="checkbox"/> TRRP Checklist |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          | (6-23: +0.2°C)      |
| TAT Starts Day received by Lab, if received by 5:00 pm           |                                |                                         |                 |                                                                                                 |        |              |     |                        |      |            |      |              |      |            |               |      |          | Corrected Temp: 1.2 |
| Relinquished by Sampler:                                         |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 1                                                                |                                | 7-17-17 10:00am                         |                 | 1                                                                                               |        | 7-17-17      |     | 2                      |      | 7-17-17    |      | 2            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 3                                                                |                                | 7-17-17 10:00am                         |                 | 3                                                                                               |        | 7-17-17      |     | 4                      |      | 7-17-17    |      | 4            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      | 7-17-17    |      | 6            |      | 7-17-17    |               |      |          |                     |
| Relinquished by:                                                 |                                | Date Time:                              |                 | Received By:                                                                                    |        | Date Time:   |     | Relinquished By:       |      | Date Time: |      | Received By: |      | Date Time: |               |      |          |                     |
| 5                                                                |                                | 7-17-17 10:00am                         |                 | 5                                                                                               |        | 7-17-17      |     | 6                      |      |            |      |              |      |            |               |      |          |                     |



**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