



[Dakota Neel]  
[HSE Coordinator]

March 2, 2019

Bradford Billings  
Oil Conservation Division  
Santa Fe

Ryan Mann  
New Mexico State Land Office  
2827 N. Dal Paso Suite 117  
Hobbs, NM 88240

**Re: Closure Letter  
Momentum 36 State #001  
API: 30-025-37517)  
RP#: 1RP-5020**

Mr. Billings/Mr. Mann,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Momentum 36 State #001. This release occurred on April 8, 2018. Following the release an assessment of impacted soils was conducted and a risk based remediation was completed.

## **BACKGROUND**

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

On April 8, 2018, a hole formed in the discharge line running to the well resulting in the release of approximately eight (8) barrels (bbls) of produced water.

Remediation activities were conducted at risk in accordance with NMOCD/NMSLO guidelines. The analytical results from the initial assessment as well as confirmation soil sampling activities are summarized in the tables below.

## **GROUNDWATER AND SITE RANKING**

According to the New Mexico Office of the State Engineer (NMOSE) groundwater in the project vicinity is approximately two-hundred and thirty (230) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is zero (0) based on the following:

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

March 2, 2019

**Samples**

Momentum 36 State #001					
K-36-25S-35E					
Sample ID	Date	Chloride mg/Kg	Benzene mg/Kg	BTEX mg/Kg	TPH mg/Kg
<b>Well Trench - 1 3'</b>	<b>4/24/2018</b>	<b>3,200</b>	<b>&lt;0.050</b>	<b>&lt;0.300</b>	<b>&lt;10.0</b>
Well Trench - 1 5'	4/24/2018	176	<0.050	<0.300	<10.0
<b>Well Trench - 2 3'</b>	<b>4/24/2018</b>	<b>1,960</b>	<b>&lt;0.050</b>	<b>&lt;0.300</b>	<b>&lt;10.0</b>
Well Trench - 2 5'	4/24/2018	544	<0.050	<0.300	<10.0
Well Trench - 2 6'	4/24/2018	-	<0.050	<0.300	<10.0
<b>Well Trench - 3 3'</b>	<b>4/24/2018</b>	<b>3,320</b>	<b>&lt;0.050</b>	<b>&lt;0.300</b>	<b>&lt;10.0</b>
<b>Well Trench - 3 4'</b>	<b>4/24/2018</b>	<b>3,560</b>	<b>&lt;0.050</b>	<b>&lt;0.300</b>	<b>&lt;10.0</b>
Well Trench - 3 6'	4/24/2018	3,320	<0.050	<0.300	<10.0
Well Trench - 3 8'	4/24/2018	920	<0.050	<0.300	<10.0
<b>Well Trench - 3 East 1 3'</b>	<b>4/24/2018</b>	<b>896</b>	<b>&lt;0.050</b>	<b>&lt;0.300</b>	<b>&lt;10.0</b>
<b>Well Trench - 3 East 1 4'</b>	<b>4/24/2018</b>	<b>1,120</b>	<b>&lt;0.050</b>	<b>&lt;0.300</b>	<b>&lt;10.0</b>
Well Trench - 3 East 1 5'	4/24/2018	800	<0.050	<0.300	<10.0
Well Trench - 3 East 1 6'	4/24/2018	1,410	<0.050	<0.300	<10.0
Well Trench - 3 East 1 7'	4/24/2018	1,250	<0.050	<0.300	<10.0
Well Trench - 3 East 1 10'	4/24/2018	960	<0.050	<0.300	<10.0
Well Trench - 3 East 1 11'4"	4/24/2018	320	<0.050	<0.300	<10.0
T-4 3'	4/24/2018	80.0	<0.050	<0.300	<10.0
T-5 3'	4/24/2018	32.0	<0.050	<0.300	<10.0
T-6 3'	4/24/2018	<16.0	<0.050	<0.300	<10.0
South West	5/2/2018	32.7	<0.00199	<0.00199	<14.9
South East	5/2/2018	26.4	<0.00200	<0.00200	<15.0
East	5/2/2018	25.4	<0.00198	<0.00198	<15.0
West	5/2/2018	107	<0.00200	<0.00200	<15.0
North	5/2/2018	148	<0.00201	<0.00201	<15.0

March 2, 2019

## REMEDIAL ACTIONS

- The impacted areas of Well Trench-1, Well Trench-2, Well Trench-3, Well Trench-3 East, and T-4 were excavated to a total depth of four (4) feet BGS and lined with a 20 mil plastic liner.
- The impacted area of T-5 and T-6 were excavated to a total depth of three (3) feet BGS.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- The excavation was backfilled with caliche and contoured to match the surrounding terrain.

## CLOSURE REQUEST

COG Operating, LLC respectfully requests closure approval for the Momentum 36 State #001 (1RP-5020). Should you have any questions or concerns please do not hesitate to contact me.

Sincerely,



Dakota Neel  
HSE Coordinator

Enclosed:

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

# APPENDIX I



Legend

- AOI
- Sample Points





# APPENDIX II

**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 III

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

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

Form C-141  
Revised April 3, 2017  
Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report


Name of Company: COG Operating LLC (OGRID# 229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: <b>Momentum 36 State #001</b>	Facility Type: Salt Water Disposal
Surface Owner: State	Mineral Owner: State
API No. 30-025-37517	

### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	36	25S	35E	1,650	South	2,310	West	Lea

Latitude 32.0841141 Longitude -103.3223724 NAD83

### NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 8 bbl.	Volume Recovered: 0 bbl.
Source of Release: Hole in flowline	Date and Hour of Occurrence: April 8, 2018 1:40am	Date and Hour of Discovery: April 8, 2018 1:40am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <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 a hole in the flowline that ran from the pump to the wellhead. The old piping of the discharge line will be replaced.		
Describe Area Affected and Cleanup Action Taken.*		
The release was on location. 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: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: DeAnn Grant	Approved by Environmental Specialist:	
Title: HSE Administrative Assistant	Approval Date:	Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: April 11, 2018	Phone: 432-253-4513	

\* Attach Additional Sheets If Necessary

# **APPENDIX IV**

District I  
1625 N. French Dr., Hobbs, NM 88240  
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811 S. First St., Artesia, NM 88210  
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1000 Rio Brazos Road, Aztec, NM 87410  
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State of New Mexico  
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Oil Conservation Division  
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Form C-141  
Revised April 3, 2017  
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Surface Owner: State	Mineral Owner: State
API No. 30-025-37517	

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Source of Release: Hole in flowline	Date and Hour of Occurrence: April 8, 2018 1:40am	Date and Hour of Discovery: April 8, 2018 1:40am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <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 a hole in the flowline that ran from the pump to the wellhead. The old piping of the discharge line will be replaced.

Describe Area Affected and Cleanup Action Taken.\*

The release was on location. A vacuum truck was dispatched to remove all freestanding fluids. Remediation activities are complete and were conducted at risk in accordance with NMOCD/NMSLO guidelines

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: 		<b>OIL CONSERVATION DIVISION</b>	
		Approved by Environmental Specialist: 	
Printed Name: Dakota Neel			
Title: HSE Coordinator		Approval Date: 4/19/2023	Expiration Date: N/A
E-mail Address: dneel2@concho.com		Conditions of Approval:	
Date: January 21, 2019 Phone: 575-746-2010		Attached <input type="checkbox"/>	
		none	

\* Attach Additional Sheets If Necessary

# APPENDIX V



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

---

May 01, 2018

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: MONUMENTUM 36 STATE #1

Enclosed are the results of analyses for samples received by the laboratory on 04/25/18 12:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at

[www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

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

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

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

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WELL TRENCH - 1 3'	H801141-01	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 1 5'	H801141-02	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 2 3'	H801141-03	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 2 5'	H801141-04	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 2 6'	H801141-05	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 3'	H801141-06	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 4'	H801141-07	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 6'	H801141-08	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 8'	H801141-09	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 EAST 1 3'	H801141-10	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 EAST 1 4'	H801141-11	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 EAST 1 5'	H801141-12	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 EAST 1 6'	H801141-13	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 EAST 1 7'	H801141-14	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 EAST 1 10'	H801141-15	Soil	24-Apr-18 00:00	25-Apr-18 12:00
WELL TRENCH - 3 EAST 1 11'4"	H801141-16	Soil	24-Apr-18 00:00	25-Apr-18 12:00
T - 4 3'	H801141-17	Soil	24-Apr-18 00:00	25-Apr-18 12:00
T - 5 3'	H801141-18	Soil	24-Apr-18 00:00	25-Apr-18 12:00
T - 6 3'	H801141-19	Soil	24-Apr-18 00:00	25-Apr-18 12:00

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 1 3'**  
**H801141-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>3200</b>		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID)	112 %	72-148	8042601	MS	26-Apr-18	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane	73.9 %	41-142	8042514	MS	26-Apr-18	8015B	
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Surrogate: 1-Chlorooctadecane	62.1 %	37.6-147	8042514	MS	26-Apr-18	8015B	
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Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 1 5'****H801141-02 (Soil)**

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

**Cardinal Laboratories****Inorganic Compounds**

Chloride	176		16.0	mg/kg	4	8042611	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 110 % 72-148 8042601 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 89.3 % 41-142 8042514 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 74.0 % 37.6-147 8042514 MS 26-Apr-18 8015B

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

Chloride	80.1		10.0	mg/kg wet	10	B804229	JDA	30-Apr-18	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 2 3'****H801141-03 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>1960</b>		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 110 % 72-148 8042601 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 83.4 % 41-142 8042514 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 67.6 % 37.6-147 8042514 MS 26-Apr-18 8015B

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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 2 5'****H801141-04 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	544		16.0	mg/kg	4	8042611	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 110 % 72-148 8042601 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 78.4 % 41-142 8042514 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 63.6 % 37.6-147 8042514 MS 26-Apr-18 8015B

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

Chloride	495		50.0	mg/kg wet	50	B804229	JDA	01-May-18	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 2 6'****H801141-05 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			111 %	72-148		8042601	MS	26-Apr-18	8021B	

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
Surrogate: 1-Chlorooctane			80.2 %	41-142		8042514	MS	26-Apr-18	8015B	
Surrogate: 1-Chlorooctadecane			62.1 %	37.6-147		8042514	MS	26-Apr-18	8015B	

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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 3'****H801141-06 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	3320		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			112 %		72-148	8042601	MS	26-Apr-18	8021B	

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
Surrogate: 1-Chlorooctane			87.7 %		41-142	8042514	MS	26-Apr-18	8015B	
Surrogate: 1-Chlorooctadecane			69.9 %		37.6-147	8042514	MS	26-Apr-18	8015B	

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 4'****H801141-07 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	3560		16.0	mg/kg	4	8042611	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 112 % 72-148 8042601 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 87.7 % 41-142 8042514 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 71.9 % 37.6-147 8042514 MS 26-Apr-18 8015B

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 6'****H801141-08 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>3320</b>		16.0	mg/kg	4	8042717	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B
Toluene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B
Ethylbenzene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B
Total Xylenes*	<0.150	0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B
Total BTEX	<0.300	0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B

Surrogate: 4-Bromofluorobenzene (PID)	106 %	72-148	8042601	MS	26-Apr-18	8021B
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B
DRO >C10-C28*	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B

Surrogate: 1-Chlorooctane	89.3 %	41-142	8042514	MS	26-Apr-18	8015B
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Surrogate: 1-Chlorooctadecane	74.7 %	37.6-147	8042514	MS	26-Apr-18	8015B
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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 8'****H801141-09 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	816		16.0	mg/kg	4	8042718	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 113 % 72-148 8042601 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 91.6 % 41-142 8042514 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 74.5 % 37.6-147 8042514 MS 26-Apr-18 8015B

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

Chloride	920		50.0	mg/kg wet	50	B804229	JDA	30-Apr-18	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 EAST 1 3'****H801141-10 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>896</b>		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID)	109 %	72-148	8042601	MS	26-Apr-18	8021B
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B
DRO >C10-C28*	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B

Surrogate: 1-Chlorooctane	85.8 %	41-142	8042514	MS	26-Apr-18	8015B
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Surrogate: 1-Chlorooctadecane	66.3 %	37.6-147	8042514	MS	26-Apr-18	8015B
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 EAST 1 4'****H801141-11 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>1120</b>		16.0	mg/kg	4	8042611	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042601	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042601	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			109 %		72-148	8042601	MS	26-Apr-18	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042514	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane			92.3 %		41-142	8042514	MS	26-Apr-18	8015B	
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Surrogate: 1-Chlorooctadecane			72.5 %		37.6-147	8042514	MS	26-Apr-18	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 EAST 1 5'****H801141-12 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	800		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			96.2 %		72-148	8042604	MS	26-Apr-18	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane			80.6 %		41-142	8042602	MS	26-Apr-18	8015B	
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Surrogate: 1-Chlorooctadecane			71.1 %		37.6-147	8042602	MS	26-Apr-18	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 EAST 1 6'****H801141-13 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	1410		16.0	mg/kg	4	8042717	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			95.0 %		72-148	8042604	MS	26-Apr-18	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane			78.7 %		41-142	8042602	MS	26-Apr-18	8015B	
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Surrogate: 1-Chlorooctadecane			68.1 %		37.6-147	8042602	MS	26-Apr-18	8015B	
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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 EAST 1 7'****H801141-14 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	1250		16.0	mg/kg	4	8042717	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			95.5 %		72-148	8042604	MS	26-Apr-18	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane			73.6 %		41-142	8042602	MS	26-Apr-18	8015B	
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Surrogate: 1-Chlorooctadecane			63.8 %		37.6-147	8042602	MS	26-Apr-18	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 EAST 1 10'****H801141-15 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	960		16.0	mg/kg	4	8042717	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			95.8 %		72-148	8042604	MS	26-Apr-18	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane			75.8 %		41-142	8042602	MS	26-Apr-18	8015B	
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Surrogate: 1-Chlorooctadecane			64.8 %		37.6-147	8042602	MS	26-Apr-18	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**WELL TRENCH - 3 EAST 1 11'4"****H801141-16 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	320		16.0	mg/kg	4	8042717	AC	27-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 95.8 % 72-148 8042604 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 72.3 % 41-142 8042602 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 62.9 % 37.6-147 8042602 MS 26-Apr-18 8015B

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

Chloride	292		10.0	mg/kg wet	10	B804229	JDA	30-Apr-18	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**T - 4 3'**  
**H801141-17 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>80.0</b>		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 72-148 8042604 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 71.9 % 41-142 8042602 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 61.8 % 37.6-147 8042602 MS 26-Apr-18 8015B

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

<b>Chloride</b>	<b>51.0</b>		10.0	mg/kg wet	10	B804229	JDA	30-Apr-18	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**T - 5 3'**  
**H801141-18 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148 8042604 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 80.5 % 41-142 8042602 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 70.8 % 37.6-147 8042602 MS 26-Apr-18 8015B

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

Chloride	12.4		10.0	mg/kg wet	10	B804229	JDA	30-Apr-18	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**T - 6 3'**  
**H801141-19 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	<16.0		16.0	mg/kg	4	8042610	AC	26-Apr-18	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Toluene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	8042604	MS	26-Apr-18	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	8042604	MS	26-Apr-18	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148 8042604 MS 26-Apr-18 8021B

**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	8042602	MS	26-Apr-18	8015B	

Surrogate: 1-Chlorooctane 83.7 % 41-142 8042602 MS 26-Apr-18 8015B

Surrogate: 1-Chlorooctadecane 73.6 % 37.6-147 8042602 MS 26-Apr-18 8015B

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

Chloride	<10.0		10.0	mg/kg wet	10	B804229	JDA	30-Apr-18	EPA300.0	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 8042610 - 1:4 DI Water****Blank (8042610-BLK1)**

Prepared &amp; Analyzed: 26-Apr-18

Chloride	ND	16.0	mg/kg
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**LCS (8042610-BS1)**

Prepared &amp; Analyzed: 26-Apr-18

Chloride	416	16.0	mg/kg	400	104	80-120
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**LCS Dup (8042610-BSD1)**

Prepared &amp; Analyzed: 26-Apr-18

Chloride	400	16.0	mg/kg	400	100	80-120	3.92	20
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**Batch 8042611 - 1:4 DI Water****Blank (8042611-BLK1)**

Prepared &amp; Analyzed: 26-Apr-18

Chloride	ND	16.0	mg/kg
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**LCS (8042611-BS1)**

Prepared &amp; Analyzed: 26-Apr-18

Chloride	448	16.0	mg/kg	400	112	80-120
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**LCS Dup (8042611-BSD1)**

Prepared &amp; Analyzed: 26-Apr-18

Chloride	432	16.0	mg/kg	400	108	80-120	3.64	20
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**Batch 8042717 - 1:4 DI Water****Blank (8042717-BLK1)**

Prepared &amp; Analyzed: 27-Apr-18

Chloride	ND	16.0	mg/kg
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**LCS (8042717-BS1)**

Prepared &amp; Analyzed: 27-Apr-18

Chloride	416	16.0	mg/kg	400	104	80-120
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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 8042717 - 1:4 DI Water****LCS Dup (8042717-BSD1)**

Prepared &amp; Analyzed: 27-Apr-18

Chloride	416	16.0	mg/kg	400	104	80-120	0.00	20
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**Batch 8042718 - 1:4 DI Water****Blank (8042718-BLK1)**

Prepared &amp; Analyzed: 27-Apr-18

Chloride	ND	16.0	mg/kg					
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**LCS (8042718-BS1)**

Prepared &amp; Analyzed: 27-Apr-18

Chloride	448	16.0	mg/kg	400	112	80-120		
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**LCS Dup (8042718-BSD1)**

Prepared &amp; Analyzed: 27-Apr-18

Chloride	416	16.0	mg/kg	400	104	80-120	7.41	20
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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 8042601 - Volatiles****Blank (8042601-BLK1)**

Prepared &amp; Analyzed: 26-Apr-18

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.111		mg/kg	0.100		111	72-148			

**LCS (8042601-BS1)**

Prepared &amp; Analyzed: 26-Apr-18

Benzene	1.95	0.050	mg/kg	2.00		97.7	79.5-124			
Toluene	1.99	0.050	mg/kg	2.00		99.6	75.5-127			
Ethylbenzene	1.97	0.050	mg/kg	2.00		98.5	77.7-125			
Total Xylenes	5.78	0.150	mg/kg	6.00		96.3	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.103		mg/kg	0.100		103	72-148			

**LCS Dup (8042601-BSD1)**

Prepared &amp; Analyzed: 26-Apr-18

Benzene	1.92	0.050	mg/kg	2.00		95.9	79.5-124	1.78	6.5	
Toluene	1.96	0.050	mg/kg	2.00		98.0	75.5-127	1.60	7.02	
Ethylbenzene	1.94	0.050	mg/kg	2.00		97.0	77.7-125	1.54	7.83	
Total Xylenes	5.71	0.150	mg/kg	6.00		95.2	70.9-124	1.18	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	0.106		mg/kg	0.100		106	72-148			

**Batch 8042604 - Volatiles****Blank (8042604-BLK1)**

Prepared &amp; Analyzed: 26-Apr-18

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0976		mg/kg	0.100		97.6	72-148			

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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 8042604 - Volatiles****LCS (8042604-BS1)**

Prepared &amp; Analyzed: 26-Apr-18

Benzene	2.06	0.050	mg/kg	2.00		103	79.5-124			
Toluene	2.03	0.050	mg/kg	2.00		102	75.5-127			
Ethylbenzene	1.99	0.050	mg/kg	2.00		99.4	77.7-125			
Total Xylenes	6.05	0.150	mg/kg	6.00		101	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.0944		mg/kg	0.100		94.4	72-148			

**LCS Dup (8042604-BS1)**

Prepared &amp; Analyzed: 26-Apr-18

Benzene	2.07	0.050	mg/kg	2.00		104	79.5-124	0.537	6.5	
Toluene	2.04	0.050	mg/kg	2.00		102	75.5-127	0.370	7.02	
Ethylbenzene	2.01	0.050	mg/kg	2.00		101	77.7-125	1.11	7.83	
Total Xylenes	6.10	0.150	mg/kg	6.00		102	70.9-124	0.887	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	0.0950		mg/kg	0.100		95.0	72-148			

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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 8042514 - General Prep - Organics****Blank (8042514-BLK1)**

Prepared &amp; Analyzed: 26-Apr-18

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	49.8		mg/kg	50.0		99.7	41-142			
Surrogate: 1-Chlorooctadecane	43.0		mg/kg	50.0		86.0	37.6-147			

**LCS (8042514-BS1)**

Prepared &amp; Analyzed: 26-Apr-18

GRO C6-C10	227	10.0	mg/kg	200		114	76.5-133			
DRO >C10-C28	219	10.0	mg/kg	200		110	72.9-138			
Total TPH C6-C28	447	10.0	mg/kg	400		112	78-132			
Surrogate: 1-Chlorooctane	51.4		mg/kg	50.0		103	41-142			
Surrogate: 1-Chlorooctadecane	47.7		mg/kg	50.0		95.4	37.6-147			

**LCS Dup (8042514-BSD1)**

Prepared &amp; Analyzed: 26-Apr-18

GRO C6-C10	228	10.0	mg/kg	200		114	76.5-133	0.131	20.6	
DRO >C10-C28	218	10.0	mg/kg	200		109	72.9-138	0.443	20.6	
Total TPH C6-C28	446	10.0	mg/kg	400		112	78-132	0.150	18	
Surrogate: 1-Chlorooctane	51.6		mg/kg	50.0		103	41-142			
Surrogate: 1-Chlorooctadecane	47.2		mg/kg	50.0		94.4	37.6-147			

**Batch 8042602 - General Prep - Organics****Blank (8042602-BLK1)**

Prepared &amp; Analyzed: 26-Apr-18

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	43.5		mg/kg	50.0		86.9	41-142			
Surrogate: 1-Chlorooctadecane	39.6		mg/kg	50.0		79.3	37.6-147			

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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 8042602 - General Prep - Organics****LCS (8042602-BS1)**

Prepared &amp; Analyzed: 26-Apr-18

GRO C6-C10	188	10.0	mg/kg	200		94.0	76.5-133			
DRO >C10-C28	199	10.0	mg/kg	200		99.5	72.9-138			
Total TPH C6-C28	387	10.0	mg/kg	400		96.8	78-132			
Surrogate: 1-Chlorooctane	44.9		mg/kg	50.0		89.7	41-142			
Surrogate: 1-Chlorooctadecane	42.7		mg/kg	50.0		85.4	37.6-147			

**LCS Dup (8042602-BSD1)**

Prepared &amp; Analyzed: 26-Apr-18

GRO C6-C10	186	10.0	mg/kg	200		92.8	76.5-133	1.27	20.6	
DRO >C10-C28	197	10.0	mg/kg	200		98.4	72.9-138	1.14	20.6	
Total TPH C6-C28	382	10.0	mg/kg	400		95.6	78-132	1.20	18	
Surrogate: 1-Chlorooctane	44.4		mg/kg	50.0		88.7	41-142			
Surrogate: 1-Chlorooctadecane	42.7		mg/kg	50.0		85.4	37.6-147			

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**Analytical Results For:**

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

Project: MONUMENTUM 36 STATE #1  
Project Number: NONE GIVEN  
Project Manager: SHELDON HITCHCOCK  
Fax To: NONE

Reported:  
01-May-18 13:55

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B804229 - General Prep - Wet Chem</b>										
<b>Blank (B804229-BLK1)</b>										
Prepared & Analyzed: 30-Apr-18										
Chloride	ND	10.0	mg/kg wet							
<b>LCS (B804229-BS1)</b>										
Prepared & Analyzed: 30-Apr-18										
Chloride	231	10.0	mg/kg wet	250		92.3	85-115			
<b>LCS Dup (B804229-BSD1)</b>										
Prepared & Analyzed: 30-Apr-18										
Chloride	230	10.0	mg/kg wet	250		91.8	85-115	0.521	20	

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### Notes and Definitions

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

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\*=Accredited Analyte

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A handwritten signature in cursive script, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager





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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO										ANALYSIS REQUEST									
Company Name: Concho Resources					P.O. #:														
Project Manager: Sheldon Hitchcock					Company: COG														
Address: 2407 Pecos Avenue					Attn: Robert McNeill														
City: Artesia					State: NM Zip: 88210														
Phone #: 575-703-6475					Address:														
Fax #:					City:														
Project #:					State:														
Project Name: Monumentum 36 St. #1					Zip:														
Project Location:					Phone #:														
Fax #:																			
Sample Name: Chris Gray					FAX #:														
FOR LAB USE ONLY																			
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		MATRIX		PRESERV		SAMPLING							
				GROUNDWATER				WASTEWATER											
				SOIL				OIL											
				SLUDGE				OTHER :											
				ACID/BASE:				ICE / COOL											
				OTHER :															
				DATE		TIME													
H801141		Well Trench-1 3'		G		1		✓		✓		✓		TPH (8015M Extended)					
2		Well Trench-1 5'		G		1		✓		✓		✓		BTEx (8021B)					
3		Well Trench-2 3'		G		1		✓		✓		✓		Chlorides (See Remarks)					
4		Well Trench-2 5'		G		1		✓		✓		✓		Cl 300 added 4/27/18					
5		Well Trench-2 6'		G		1		✓		✓		✓		X					
6		Well Trench-3 3'		G		1		✓		✓		✓		X					
7		Well Trench-3 4'		G		1		✓		✓		✓							
8		Well Trench-3 6'		G		1		✓		✓		✓							
9		Well Trench-3 8'		G		1		✓		✓		✓							
10		Well Trench-3 East 1 3'		G		1		✓		✓		✓							
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.																			
Relinquished By:					Date: 4/26/18		Received By: Bittany Farn		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:								
Relinquished By:					Time: 18:00		Received By:		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:								
Delivered By: (Circle One) #75					Time: 4:10p / 4:05c		Sample Condition: Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No		CHECKED BY: (Initials) [Signature]										
Sampler - UPS - Bus - Other: 4:10p / 4:05c																			
REMARKS: STOP CI IF ≤ 600 mg/mg confirm Final sample w/ EPA 300										Rush!									





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Concho Resources		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: Sheldon Hitchcock		Company: COG					
Address: 2407 Pecos Avenue		Attn: Robert McNeill					
City: Artesia		Address:					
Phone #: 575-703-6475		City:					
Fax #: Project Owner: Concho		State:					
Project #: Momentum 36 St #1		Zip:					
Project Location:		Phone #:					
Sampler Name: Chris Gray		Fax #:					
FOR LAB USE ONLY		PRESERV		SAMPLING			
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX	DATE	TIME	
H201141	Well Trench - 3 East 2 4'		1	GROUNDWATER	4/24/18		
11	Well Trench East 2 5'		1	WASTEWATER			
12	Well Trench East 2 6'		1	SOIL			
13	Well Trench East 2 7'		1	OIL			
14	Well Trench East 2 10'		1	SLUDGE			
15	Well Trench East 1 11 4"		1	OTHER :			
16	T-4 3'		1	ACID/BASE:			
17	T-5 3'		1	ICE / COOL			
18	T-6 3'		1	OTHER :			
19			1				
RELEINQUISHED BY: [Signature]		RECEIVED BY: [Signature]		CHECKED BY: [Signature]			
Relinquished By: [Signature]		Date: 4/25/18		Time: 12:00			
Delivered By: (Circle One) #75		Sample Condition		Cool Intact			
Sampler - UPS - Bus - Other: 4.70/4.650		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326		Corrected - 050					
REMARKS:		TPH (8015M Extension)		BTBY (8021B)		Chlorides (see Remarks)	
STOP CI IF $\leq$ 600 mg/KS confirm w/ EPA 300 on Pinal Sample		C1 300 added 4/27/18		XXXX			
Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Phone #:		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Add'l Fax #:					

# Analytical Report 584933

## for COG Operating LLC

**Project Manager: Dakota Neel**

**Momentum 36 State #001**

**09-MAY-18**

Collected By: Client



**1211 W. Florida Ave, Midland TX 79701**

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

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

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



09-MAY-18

Project Manager: **Dakota Neel**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **584933**

**Momentum 36 State #001**

Project Address:

**Dakota Neel:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 584933. 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. 584933 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

**Jessica Kramer**

Project Assistant

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

*Certified and approved by numerous States and Agencies.*

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

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

**Sample Cross Reference 584933****COG Operating LLC, Artesia, NM**

Momentum 36 State #001

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
South West	S	05-02-18 09:30		584933-001
South East	S	05-02-18 09:30		584933-002
East	S	05-02-18 09:30		584933-003
West	S	05-02-18 09:30		584933-004
North	S	05-02-18 09:30		584933-005

**CASE NARRATIVE****Client Name: COG Operating LLC****Project Name: Momentum 36 State #001**

Project ID:

Work Order Number(s): 584933

Report Date: 09-MAY-18

Date Received: 05/04/2018

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**Sample receipt non conformances and comments:**None

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**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3049163 BTEX by EPA 8021B

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

Batch: LBA-3049472 Inorganic Anions by EPA 300

Lab Sample ID 584933-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 584933-001, -002, -003, -004, -005. The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **South West**

Matrix: Soil

Date Received: 05.04.18 10.10

Lab Sample Id: 584933-001

Date Collected: 05.02.18 09.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 05.08.18 08.15

Basis: Wet Weight

Seq Number: 3049472

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	32.7	4.95	mg/kg	05.09.18 11.27		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.05.18 10.00

Basis: Wet Weight

Seq Number: 3049199

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	05.05.18 22.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	05.05.18 22.54	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	05.05.18 22.54	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	05.05.18 22.54	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>	
1-Chlorooctane	111-85-3	85	%	70-135	05.05.18 22.54		
o-Terphenyl	84-15-1	84	%	70-135	05.05.18 22.54		





# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **South West**

Matrix: Soil

Date Received: 05.04.18 10.10

Lab Sample Id: 584933-001

Date Collected: 05.02.18 09.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.45

Basis: Wet Weight

Seq Number: 3049163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.06.18 03.07	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.06.18 03.07	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.06.18 03.07	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.06.18 03.07	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.06.18 03.07	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.06.18 03.07	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.06.18 03.07	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>	
4-Bromofluorobenzene	460-00-4	111	%	70-130	05.06.18 03.07		
1,4-Difluorobenzene	540-36-3	100	%	70-130	05.06.18 03.07		



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **South East**

Matrix: Soil

Date Received: 05.04.18 10.10

Lab Sample Id: 584933-002

Date Collected: 05.02.18 09.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 05.08.18 08.15

Basis: Wet Weight

Seq Number: 3049472

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	26.4	5.00	mg/kg	05.09.18 13.11		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.05.18 10.00

Basis: Wet Weight

Seq Number: 3049199

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.05.18 23.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.05.18 23.21	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.05.18 23.21	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.05.18 23.21	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	96	%	70-135	05.05.18 23.21		
o-Terphenyl	84-15-1	93	%	70-135	05.05.18 23.21		



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **South East**

Matrix: Soil

Date Received: 05.04.18 10.10

Lab Sample Id: 584933-002

Date Collected: 05.02.18 09.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.45

Basis: Wet Weight

Seq Number: 3049163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.06.18 03.28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.06.18 03.28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.06.18 03.28	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.06.18 03.28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.06.18 03.28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.06.18 03.28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.06.18 03.28	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	106	%	70-130	05.06.18 03.28		
1,4-Difluorobenzene	540-36-3	94	%	70-130	05.06.18 03.28		



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **East**  
Lab Sample Id: 584933-003

Matrix: Soil  
Date Collected: 05.02.18 09.30

Date Received: 05.04.18 10.10

Analytical Method: Chloride by EPA 300

Tech: SCM

Analyst: SCM

Seq Number: 3049472

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 05.08.18 08.15

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	25.4	5.00	mg/kg	05.09.18 13.21		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3049199

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 05.05.18 10.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.05.18 23.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.05.18 23.48	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.05.18 23.48	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.05.18 23.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	05.05.18 23.48	
o-Terphenyl	84-15-1	93	%	70-135	05.05.18 23.48	



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **East**  
Lab Sample Id: 584933-003

Matrix: Soil  
Date Collected: 05.02.18 09.30

Date Received: 05.04.18 10.10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.45

Basis: Wet Weight

Seq Number: 3049163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.06.18 03.47	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.06.18 03.47	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.06.18 03.47	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	05.06.18 03.47	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.06.18 03.47	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.06.18 03.47	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.06.18 03.47	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	%	70-130	05.06.18 03.47		
4-Bromofluorobenzene	460-00-4	106	%	70-130	05.06.18 03.47		



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **West**  
Lab Sample Id: 584933-004

Matrix: Soil  
Date Collected: 05.02.18 09.30

Date Received: 05.04.18 10.10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 05.08.18 08.15

Basis: Wet Weight

Seq Number: 3049472

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	107	4.99	mg/kg	05.09.18 13.32		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.05.18 10.00

Basis: Wet Weight

Seq Number: 3049199

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.06.18 00.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.06.18 00.15	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.06.18 00.15	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.06.18 00.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	05.06.18 00.15	
o-Terphenyl	84-15-1	89	%	70-135	05.06.18 00.15	



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **West**  
Lab Sample Id: 584933-004

Matrix: Soil  
Date Collected: 05.02.18 09.30

Date Received: 05.04.18 10.10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.45

Basis: Wet Weight

Seq Number: 3049163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.06.18 04.09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.06.18 04.09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.06.18 04.09	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.06.18 04.09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.06.18 04.09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.06.18 04.09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.06.18 04.09	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	106	%	70-130	05.06.18 04.09		
1,4-Difluorobenzene	540-36-3	103	%	70-130	05.06.18 04.09		



# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **North**  
Lab Sample Id: 584933-005

Matrix: Soil  
Date Collected: 05.02.18 09.30

Date Received: 05.04.18 10.10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 05.08.18 08.15

Basis: Wet Weight

Seq Number: 3049472

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	148	4.97	mg/kg	05.09.18 13.42		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 05.05.18 10.00

Basis: Wet Weight

Seq Number: 3049199

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.06.18 00.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.06.18 00.40	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.06.18 00.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.06.18 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	87	%	70-135	05.06.18 00.40		
o-Terphenyl	84-15-1	87	%	70-135	05.06.18 00.40		





# Certificate of Analytical Results 584933



## COG Operating LLC, Artesia, NM

Momentum 36 State #001

Sample Id: **North**  
Lab Sample Id: 584933-005

Matrix: Soil  
Date Collected: 05.02.18 09.30

Date Received: 05.04.18 10.10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 05.05.18 07.45

Basis: Wet Weight

Seq Number: 3049163

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.06.18 04.30	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.06.18 04.30	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.06.18 04.30	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.06.18 04.30	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.06.18 04.30	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.06.18 04.30	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.06.18 04.30	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	106	%	70-130	05.06.18 04.30		
1,4-Difluorobenzene	540-36-3	95	%	70-130	05.06.18 04.30		



## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample      **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



## COG Operating LLC

Momentum 36 State #001

## Analytical Method: Chloride by EPA 300

Seq Number: 3049472

MB Sample Id: 7644267-1-BLK

Matrix: Solid

LCS Sample Id: 7644267-1-BKS

Prep Method: E300P

Date Prep: 05.08.18

LCSD Sample Id: 7644267-1-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	236	94	236	94	90-110	0	20	mg/kg	05.09.18 10:01	

## Analytical Method: Chloride by EPA 300

Seq Number: 3049472

Parent Sample Id: 584933-001

Matrix: Soil

MS Sample Id: 584933-001 S

Prep Method: E300P

Date Prep: 05.08.18

MSD Sample Id: 584933-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.7	248	247	86	248	87	90-110	0	20	mg/kg	05.09.18 11:38	X

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3049199

MB Sample Id: 7644168-1-BLK

Matrix: Solid

LCS Sample Id: 7644168-1-BKS

Prep Method: TX1005P

Date Prep: 05.05.18

LCSD Sample Id: 7644168-1-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	885	89	897	90	70-135	1	20	mg/kg	05.05.18 13:29	
Diesel Range Organics (DRO)	<15.0	1000	987	99	964	96	70-135	2	20	mg/kg	05.05.18 13:29	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	77		90		115		70-135	%	05.05.18 13:29			
o-Terphenyl	79		88		88		70-135	%	05.05.18 13:29			

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3049199

Parent Sample Id: 584931-001

Matrix: Soil

MS Sample Id: 584931-001 S

Prep Method: TX1005P

Date Prep: 05.05.18

MSD Sample Id: 584931-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	998	948	95	881	88	70-135	7	20	mg/kg	05.05.18 14:54	
Diesel Range Organics (DRO)	<15.0	998	1120	112	1130	113	70-135	1	20	mg/kg	05.05.18 14:54	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			112		100		70-135	%	05.05.18 14:54			
o-Terphenyl			91		92		70-135	%	05.05.18 14:54			

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

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

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

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



## COG Operating LLC

Momentum 36 State #001

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3049163

MB Sample Id: 7644157-1-BLK

Matrix: Solid

LCS Sample Id: 7644157-1-BKS

Prep Method: SW5030B

Date Prep: 05.05.18

LCSD Sample Id: 7644157-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.114	114	0.111	111	70-130	3	35	mg/kg	05.05.18 18:54	
Toluene	<0.00200	0.0998	0.108	108	0.106	106	70-130	2	35	mg/kg	05.05.18 18:54	
Ethylbenzene	<0.00200	0.0998	0.114	114	0.109	109	70-130	4	35	mg/kg	05.05.18 18:54	
m,p-Xylenes	<0.00399	0.200	0.235	118	0.227	114	70-130	3	35	mg/kg	05.05.18 18:54	
o-Xylene	<0.00200	0.0998	0.116	116	0.113	113	70-130	3	35	mg/kg	05.05.18 18:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		98		103		70-130	%	05.05.18 18:54
4-Bromofluorobenzene	88		100		95		70-130	%	05.05.18 18:54

## Analytical Method: BTEX by EPA 8021B

Seq Number: 3049163

Parent Sample Id: 584931-001

Matrix: Soil

MS Sample Id: 584931-001 S

Prep Method: SW5030B

Date Prep: 05.05.18

MSD Sample Id: 584931-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.107	107	0.105	105	70-130	2	35	mg/kg	05.05.18 19:37	
Toluene	<0.00200	0.0998	0.103	103	0.100	100	70-130	3	35	mg/kg	05.05.18 19:37	
Ethylbenzene	<0.00200	0.0998	0.105	105	0.103	103	70-130	2	35	mg/kg	05.05.18 19:37	
m,p-Xylenes	<0.00399	0.200	0.217	109	0.213	107	70-130	2	35	mg/kg	05.05.18 19:37	
o-Xylene	<0.00200	0.0998	0.107	107	0.107	107	70-130	0	35	mg/kg	05.05.18 19:37	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		102		70-130	%	05.05.18 19:37
4-Bromofluorobenzene	105		105		70-130	%	05.05.18 19:37

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

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

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

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



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

# CHAIN OF CUSTODY

Page 1 Of 1

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

[www.xenco.com](http://www.xenco.com)

Phoenix, Arizona (480-355-0900)

Client / Reporting Information		Project Information		Analytical Information		Matrix Codes	
Company Name / Branch: COG Operating LLC		Project Name/Number: Momentum 36 State #001					
Company Address: 2407 Pecos Ave. Artesia NM 88210		Project Location:					
Email: dnee2@concho.com silhickcock@concho.com gray@concho.com; thackell@concho.com		Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland TX, 79701					
Project Contact: Dakota Neel		PO Number:					
Samplers Name: Dakota Neel							
No.	Field ID / Point of Collection	Collection					
	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate
1	South West	5/2/2018	9:30 AM	Soil	1		
2	South East	5/2/2018	9:30 AM	Soil	1		
3	East	5/2/2018	9:30 AM	Soil	1		
4	West	5/2/2018	9:30 AM	Soil	1		
5	North	5/2/2018	9:30 AM	Soil	1		
6							
7							
8							
9							
10							
Turnaround Time (Business days)		Data Deliverable Information					
<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 checked="" 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: 5-3-18 9:00 AM		Received By: 1. Dan Butler 5-3-18 9:00 AM		Relinquished By: 2. Dan Butler 5-3-18 4:00 PM		Date Time: 5-3-18 4:00 PM	
Relinquished by:		Date Time:		Received By:		Relinquished By:	
3		3		4		4	
Relinquished by:		Date Time:		Custody Seal #		Preserved where applicable	
5		5					
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco. Its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.							

Xenco Quote # Xenco Job # 584933

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

Notes:

Temp: 1.4 IR ID: R-8  
CF: (0.6: -0.2°C)  
(6-23: +0.2°C)  
Corrected Temp: 1.2

Fluorescence Reading #

Online Cooler Temp. Thermo. Corr. Factor



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 05/04/2018 10:10:00 AM

Work Order #: 584933

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 05/04/2018

Checklist reviewed by:

Jessica Kramer

Date: 05/04/2018



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

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

CONDITIONS  
  
Action 206273

CONDITIONS

Operator:  SOLARIS WATER MIDSTREAM, LLC 907 Tradewinds Blvd, Suite B Midland, TX 79706	OGRID:  371643
	Action Number:  206273
	Action Type:  [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	4/19/2023