



[Sheldon L. Hitchcock]
[HSE Coordinator]

March 11, 2019

Bradford Billings
Oil Conservation Division
1220 S. St Francis Dr. #3
Santa Fe, NM 87505

**Re: Closure Report
Gettysburg State Com #001H
API #: 30-025-41928
RP#: 1RP-4701 & 1RP-4805
Unit Letter D Section 16, Township 23S, Range 34 E
Lea County, NM**

Mr. Billings,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Gettysburg State Com #001H. There were two overlapping releases at this site. The first release was on May 13, 2017 (1RP-4701) and the second was on September 7, 2017 (1RP-4805). Following each release an assessment of impacted soils was conducted. Two separate remediation work plans were submitted to and subsequently approved by the New Mexico Oil Conservation Division (NMOCD). Copies of the approved work plans are attached in Appendix V. Both of the releases were remediated simultaneously.

BACKGROUND

The Gettysburg State Com #001 is located in Unit Letter D, Section 16, Township 23 South and Range 34 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.3113899 North and -103.4824753 West.

On May 13, 2017, the day tank overflowed resulting in the release of approximately seven (7) barrels (bbls) of Oil. All of the fluid remained on location. On September 7, 2017 the day tank overflowed again resulting in a release of approximately eight (8) bbls of oil. This release overlapped the previous release on the location and also impacted the pasture.

Remediation of both releases was conducted simultaneously and in accordance with the approved work plans. The analytical results from the NMOCD stipulated confirmation soil sampling activities are summarized in the table below. A site diagram of the excavated area is presented in Appendix I.

March 11, 2019

GROUNDWATER AND SITE RANKING

According New Mexico Office of the State Engineer groundwater in the project vicinity is approximately two-hundred (200) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is zero (0) based on the following:

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

CONFIRMATION SOIL SAMPLING RESULTS

Sample ID	Sample Depth (ft)	Sample Date	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	Total			
NMOCD RRAL Limits (mg/kg)					-	-	-	5,000	10	50	600
SW-1	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	64.0
SW-2	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	112.0
SW-3	N/A	1/14/2019	X		<10.0	149.0	18.7	167.7	<0.050	<0.300	64.0
SW-4	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	80.0
SW-5	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	16.0
SW-6	N/A	1/14/2019	X		<10.0	1500	229	1729.0	<0.050	<0.300	32.0
SW-7	N/A	1/14/2019	X		<10.0	39.6	21.7	61.3	<0.050	<0.300	16.0
SW-8	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	32.0
SW-9	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	16.0
SW-10	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	<16.0
SW-11	N/A	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	48.0
T-1 BTTM	4	1/14/2019	X		<10.0	91.2	<10.0	91.2	<0.050	<0.300	16.0
T-2 BTTM	7	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	48.0
T-3 BTTM	3	1/14/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	32.0
T-2 W. BTTM	7'	1/22/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	32.0
T-2/T-3	N/A	1/22/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	<16.0
T-1/T-3	N/A	1/22/2019	X		<10.0	<10.0	<10.0	0.0	<0.050	<0.300	16.0

March 11, 2019

REMEDIAL ACTIONS

- The impacted area in the vicinity of sample location T-1 was excavated to a depth of four (4) feet BGS.
- The impacted area in the vicinity of sample location T-2 was excavated to a depth of seven (7) feet BGS.
- The impacted area in the vicinity of sample location T-3 was excavated to a depth of three (3) feet BGS.
- Confirmation soil samples were taken from the bottom and sidewalls of the excavated area per NMOCD stipulations.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- Upon receipt of analytical results confirming that all impacted soil above NMOCD RRAL's was successfully removed the excavation was backfilled and contoured to match the surrounding location.
- The affected area in the pasture will be re-seeded with the landowners preferred seed mixture once proper seasonal conditions exist.

March 11, 2019

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division grant closure approval for the Gettysburg State Com #001H incidents that occurred on May 13, 2017 (1RP-4701) and September 7, 2017 (1RP-4805).

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

Sincerely,



Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

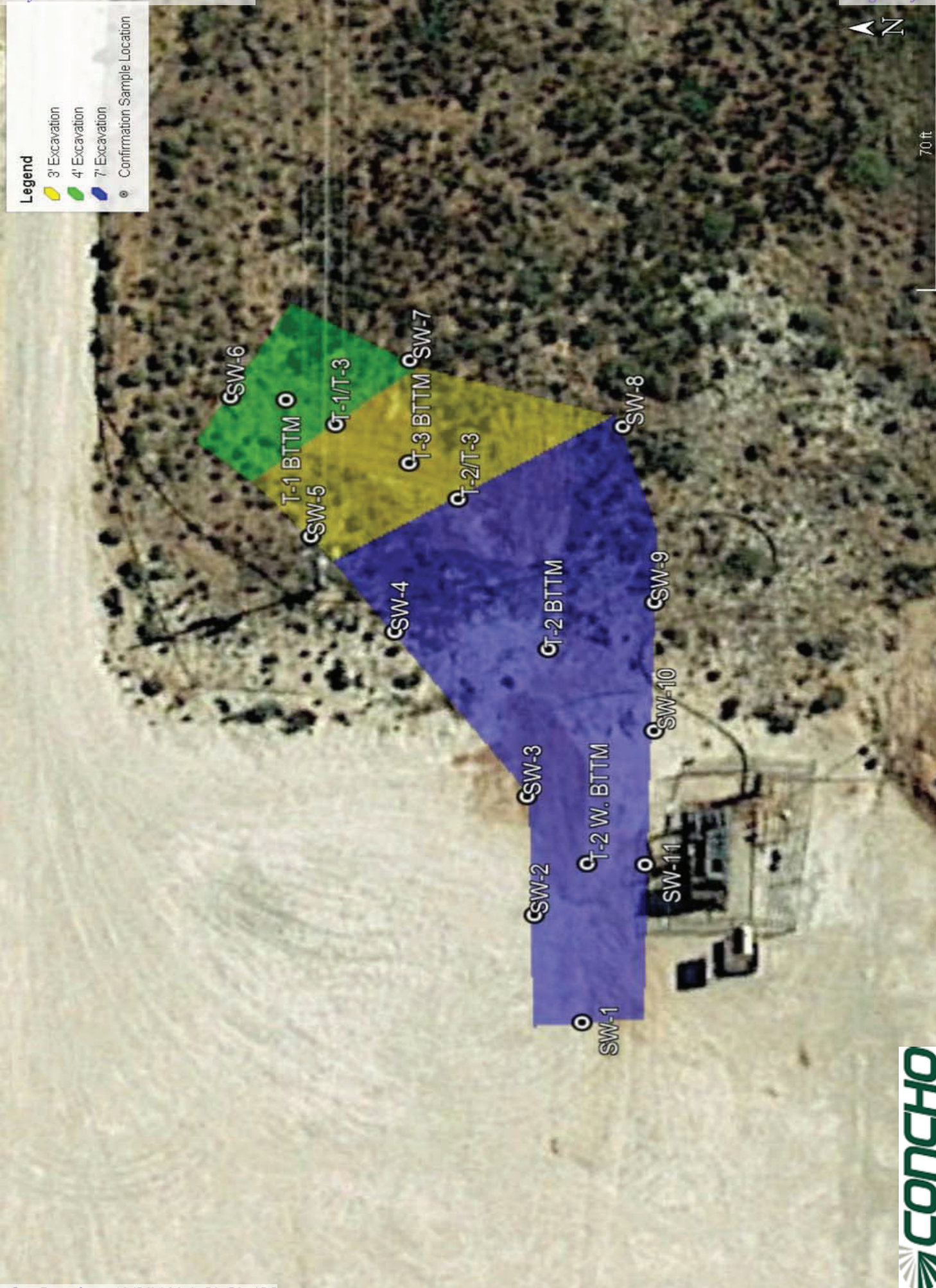
Enclosed:

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

APPENDIX I

Gettysburg State Com #001H

5/13/17 & 9/7/17



APPENDIX II



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 01730 POD1	CP	LE		2	2	1	16	23S	34E	643549	3575824	587	594	200	394

Average Depth to Water: **200 feet**

Minimum Depth: **200 feet**

Maximum Depth: **200 feet**

Record Count: 1

Basin/County Search:

County: Lea

UTMNAD83 Radius Search (in meters):

Easting (X): 642962

Northing (Y): 3575816

Radius: 1000

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.

3/9/19 11:58 AM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER

APPENDIX III

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

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Gettysburg State Com #001H	Facility Type: Production Equipment (Well Pad)
Surface Owner: State	Mineral Owner: API No. 30-025-41928

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	16	23S	34E	190	North	330	West	Lea

Latitude 32.3113899 Longitude -103.4824753

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 7 bbls	Volume Recovered: 6.5 bbls
Source of Release: Tank	Date and Hour of Occurrence: May 13, 2017 12:45 pm	Date and Hour of Discovery: May 13, 2017 12:45 pm
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The release was caused by the oil dump on production knock out malfunctioning which caused the vessel to overfill. Fluid went from the production knock out to the scrubber pots on gas compressor. The pots sent fluids to the day tank and fluid was released out of the thief hatch.

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: <i>Rebecca Haskell</i>	OIL CONSERVATION DIVISION	
Printed Name: Rebecca Haskell	Approved by Environmental Specialist: <i>oy</i>	
Title: Senior HSE Coordinator	Approval Date: 5/18/2017	Expiration Date:
E-mail Address: rhaskell@concho.com	Conditions of Approval: see attached directive	Attached ☒
Date: May 15, 2017 Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

1RP-4701

nOY1713829831

pOY1713830150

District I
1625 N. French Dr., Hobbs, NM 88240
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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
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Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: GETTYSBURG STATE COM #001H	Facility Type: Production Equipment (Well Pad)
Surface Owner: Private	Mineral Owner: State
API No. 30-025-41928	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	16	23S	34E	190	North	330	West	LEA

Latitude 32.3113899 Longitude -103.4824753

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 8 bbls	Volume Recovered: 7 bbls
Source of Release: Tank	Date and Hour of Occurrence: September 7 th , 2017 2:00 PM	Date and Hour of Discovery: September 7 th , 2017 2:00 PM
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED

By Olivia Yu at 3:24 pm, Sep 14, 2017

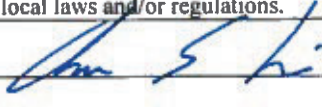
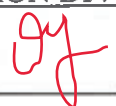
Describe Cause of Problem and Remedial Action Taken.*

The release was caused by the test meter on the test knock out malfunctioning which caused the vessel to overfill. Fluid went from the test knock out to the scrubber pots on gas compressor via the suction gas line feeding the compressor. The scrubber pot sent fluids to the day tank and fluid was released out of the thief hatch. The bad test meter will be replaced.

Describe Area Affected and Cleanup Action Taken.*

The release occurred on location and the adjacent pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Aaron Lieb	Approved by Environmental Specialist: 	
Title: Senior HSE Coordinator	Approval Date: 9/14/2017	Expiration Date:
E-mail Address: alieb@concho.com	Conditions of Approval: see attached directive	Attached ☒
Date: September 8 th , 2017 Phone: 575-748-1553		

* Attach Additional Sheets If Necessary

1RP-4805

pOY1725756297

nOY1725755233

APPENDIX IV

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jennifer Knowlton	Contact Telephone	(432) 683-7443
Contact email	jknowlton@concho.com	Incident # (assigned by OCD)	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.3113899 Longitude -103.4824753
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Gettysburg State Com #001h	Site Type	Well
Date Release Discovered	5/13/2017	API# (if applicable)	30-025-41928

Unit Letter	Section	Township	Range	County
D	16	23S	34E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: Basin Properties)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) <u>7</u>	Volume Recovered (bbls) <u>6.5</u>
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Tank Overflow

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped. ☒ The impacted area has been secured to protect human health and the environment. ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.	
Printed Name: <u>Sheldon L. Hitchcock</u>	Title: <u>HSE Coordinator</u>
Signature: _____	Date: <u>3/11/2019</u>
email: <u>slhitchcock@concho.com</u>	Telephone: <u>575-746-2010</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of 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 OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Sheldon L. Hitchcock Title: HSE Coordinator
Signature: _____ Date: 3/11/2019
email: slhitchcock@concho.com Telephone: 575-746-2010

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

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State of New Mexico
Energy Minerals and Natural
Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NOY1725755233
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jennifer Knowlton	Contact Telephone	(432) 683-7443
Contact email	jknowlton@concho.com	Incident # (assigned by OCD)	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.3113899 Longitude -103.4824753
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Gettysburg State Com #001h	Site Type	Well
Date Release Discovered	9/7/2017	API# (if applicable)	30-025-41928

Unit Letter	Section	Township	Range	County
D	16	23S	34E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: Basin Properties)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) <u>8</u>	Volume Recovered (bbls) <u>7</u>
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

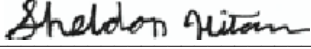
Tank Overflow

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

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☒ The impacted area has been secured to protect human health and the environment.	
☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.	
Printed Name: <u>Sheldon L. Hitchcock</u>	Title: <u>HSE Coordinator</u>
Signature: <u></u>	Date: <u>3/11/2019</u>
email: <u>slhitchcock@concho.com</u>	Telephone: <u>575-746-2010</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	
Facility ID	
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Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of 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 OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Sheldon L. Hitchcock

Title: HSE Coordinator

Signature: Sheldon Hitchcock

Date: 3/11/2019

email: slhitchcock@concho.com

Telephone: 575-746-2010

OCD Only

Received by: _____

Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Brittany Hall

Date: 12/5/2022

Printed Name: Brittany Hall

Title: Environmental Specialist

APPENDIX V

SITE INFORMATION

Report Type: Work Plan 1RP-4701

General Site Information:

Site:	Gettysburg State Com #1H					
Company:	COG Operating LLC					
Section, Township and Range	Unit D	Sec. 16	T 23S	R 34E		
Lease Number:	API No. 30-025-41928					
County:	Lea County					
GPS:	32.3113899° N			103.4824753° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of Hwy 128 and Delaware Basin Rd (CR 21), travel north on Delaware Basin Rd for approximately 10.10 miles, turn south onto lease road for approxiately 1.10 miles, turn west and continue for 0.30 mi, take the lease road to the north of the facility and continue west for 0.25 miles to the location.					

Release Data:

Date Released:	5/13/2017
Type Release:	Oil
Source of Contamination:	Tank
Fluid Released:	7 bbls
Fluids Recovered:	6.5 bbls

Official Communication:

Name:	Robert McNeil		Ike Tavaréz
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		4000 N. Big Spring
	600 W. Illinois Ave.		Ste 401
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 683-7443		(432) 687-8110
Fax:	(432) 684-7137		
Email:	rmcneil@conchoresources.com		Ike.Tavaréz@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	325'-350'
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

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

**APPROVED****By Olivia Yu at 2:30 pm, Dec 29, 2017**

December 12, 2017

NMOCD approves of the delineation completed and the proposed remediation for 1RP-4701.

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

Re: Work Plan for the COG Operating LLC., Gettysburg State Com #1H, Unit D, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico. 1RP-4701.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to prepare a work plan for a release that occurred at the Gettysburg State Com #1H, Unit D, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.3113899°, W 103.4824753 °. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on May 13, 2017, and released approximately 7 barrels of oil due to a malfunctioning oil dump on the production knock out causing a release at the day tank. A vacuum truck was used to remove the freestanding fluids, recovering 6.5 barrels of oil. The release occurred on the pad area and measured approximately 25' x 85'. The initial C-141 Form is included in Appendix A.

Groundwater

No water wells are listed within Section 16 in the New Mexico Office of the State Engineers database. The nearest well listed in the database is located in Section 15, approximately 1.70 miles southeast of the site, with a reported depth to groundwater of 430' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 325' and 350' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

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

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On June 14, 2017, COG personnel were onsite to evaluate and sample the release area. One (1) trench (T-1) was installed in the release area to a total depth of 4.0' below surface. In addition, four (4) additional sample points (North, South, East, and West) were installed to a depth of 1.0' below surface in order to define the horizontal extents of the release. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The trench locations are shown on Figure 3.

Referring to Table 1, the area of trench (T-1) showed TPH, benzene, and total BTEX concentrations above the RRALs at surface, with concentrations of 74,800 mg/kg (TPH), 27.3 mg/kg (benzene) and 725 mg/kg (total BTEX). The concentrations declined to below the RRALs at 1.0' below surface, before increasing to 20,200 mg/kg (TPH), 23.4 mg/kg (benzene) and 533 mg/kg (total BTEX) at 2.0' below surface. The impact declined with depth to below the laboratory reporting limits at 3.0' and 4.0' below surface. Additionally, none of the samples collected showed any significant chloride concentrations to the shallow soils, with a chloride high of 307 mg/kg at surface.

In addition, the horizontal samples (North, South, East, and West) did not show any TPH, benzene or total BTEX concentrations above the RRALs. Additionally, none of the samples collected in the areas of (North, South, East, and West) showed any significant chloride concentrations to the shallow soils.

Work Plan

Based on the laboratory results, COG proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of trench (T-1) will be excavated to depth of approximately 3.0' below surface. Once excavated to the appropriate depth, the excavation will be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.



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

Conclusion

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

Respectfully submitted,
TETRA TECH

A handwritten signature in blue ink that reads 'Clair Gonzales'.

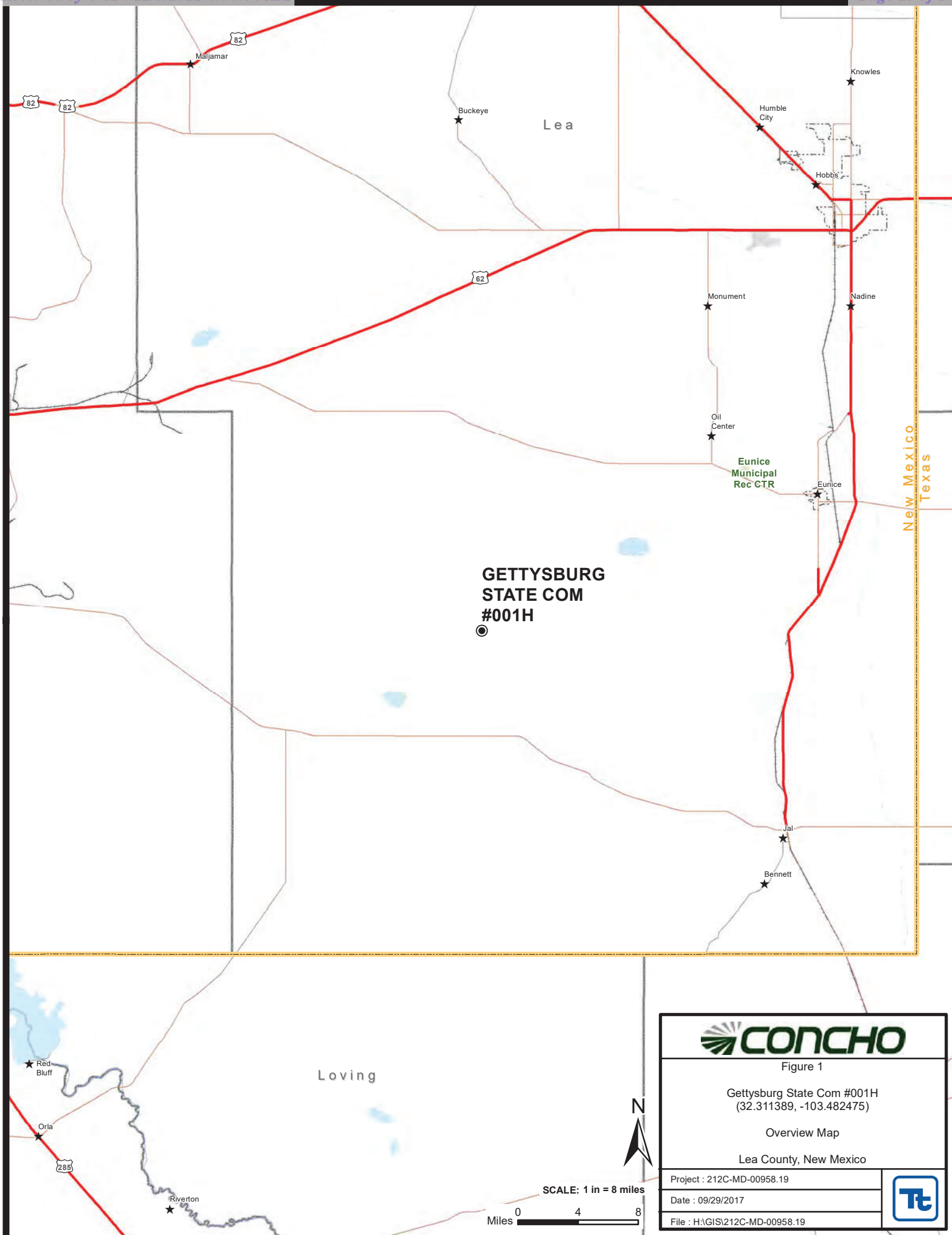
Clair Gonzales,
Geologist I

A handwritten signature in blue ink that reads 'Ike Tavarez'.

Ike Tavarez,
Senior Project Manager, P.G.

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

Figures









Tables

Table 1
COG Operating LLC.
Gettysburg State #1H
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	C6-C10	C10-C28	C28-C35	Total						
T-1	6/14/2017	Surface	X		13,700	22,800	2,730	74,800	27.3	198	133	367	725	307
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	0.00525	<0.00200	0.00438	0.00963	<4.98
	"	2	X		4,740	4,960	798	20,200	23.4	190	88.3	231	533	<5.00
	"	3	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	38.8
	"	4	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	88.7
North	6/14/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	545
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00202	0.00224	<0.00202	<0.00202	0.00224	56.6
South	6/14/2017	Surface	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	295
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	50.7
East	6/14/2017	Surface	X		<15.0	328	81.3	409	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	281
	"	1	X		<15.0	43.1	<15.0	43.1	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	61.2
West	6/14/2017	Surface	X		<15.0	22.2	<15.0	22.2	<0.00198	0.00412	0.00366	0.0181	0.0259	455
	"	1	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	25.8
Proposed Excavation Depths														

Appendix A

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

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Gettysburg State Com #001H	Facility Type: Production Equipment (Well Pad)
Surface Owner: Federal	Mineral Owner: API No. 30-025-41928

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	16	23S	34E	190	North	330	West	Lea

Latitude 32.3113899 Longitude -103.4824753

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 7 bbls	Volume Recovered: 6.5 bbls
Source of Release: Tank	Date and Hour of Occurrence: May 13, 2017 12:45 pm	Date and Hour of Discovery: May 13, 2017 12:45 pm
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The release was caused by the oil dump on production knock out malfunctioning which caused the vessel to overfill. Fluid went from the production knock out to the scrubber pots on gas compressor. The pots sent fluids to the day tank and fluid was released out of the thief hatch.

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: <i>Rebecca Haskell</i>	OIL CONSERVATION DIVISION	
Printed Name: Rebecca Haskell	Approved by Environmental Specialist:	
Title: Senior HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: rhaskell@concho.com	Conditions of Approval:	Attached ☐
Date: May 15, 2017 Phone: 432-683-7443		

* Attach Additional Sheets If Necessary

Appendix B

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

22 South			33 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

22 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

22 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

23 South			33 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

23 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

23 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			33 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			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

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 03620 POD1		C	LE	1	4	3	32	23S	34E	641790	3569941	480	130	350
CP 00556 POD1		CP	LE	4	4	3	08	23S	34E	641762	3576206	497	255	242
CP 00580		CP	LE	3	4	3	23	23S	34E	646524	3572948*	220		
CP 00606		CP	LE		4	1	23	23S	34E	646613	3573854*	650	265	385
CP 00618		CP	LE	1	2	4	22	23S	34E	645713	3573539*	428	295	133
CP 00637		CP	LE	3	3	4	15	23S	34E	645293	3574541*	430	430	0
CP 00872 POD1		CP	LE	1	1	1	08	23S	34E	641225	3577504*	494	305	189
CP 01075 POD1		CP	LE		1	1	08	23S	34E	641278	3577525	430	20	410
CP 01120 POD1		CP	LE			3	14	23S	34E	646366	3574753	397	318	79
CP 01130 POD1		CP	LE	2	1	2	07	23S	34E	640662	3577558	27		
CP 01130 POD2		CP	LE	2	1	2	07	23S	34E	640674	3577549	27		
CP 01258 POD1		CP	LE	1	4	3	22	23S	34E	645015	3573221	25		
CP 01258 POD2		CP	LE	1	4	3	22	23S	34E	644941	3572883	65		
CP 01258 POD3		CP	LE	1	4	3	22	23S	34E	644938	3573097	25		

Average Depth to Water: **252 feet**

Minimum Depth: **20 feet**

Maximum Depth: **430 feet**

Record Count: 14

PLSS Search:

Township: 23S **Range:** 34E

*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 11:30 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C



Certificate of Analysis Summary 555791

COG Operating LLC, Artesia, NM

Project Name: Gettysburg State #1 H

Project Id:

Contact: Aaron Lieb

Project Location: Gettysburg ST. #1 H

Date Received in Lab: Tue Jun-20-17 10:05 am

Report Date: 28-JUN-17

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	Field Id:	Depth:	Matrix:	Sampled:	555791-001	555791-002	555791-003	555791-004	555791-005	555791-006
	Extracted:	Field Id:	Depth:	Matrix:	Sampled:	North - Surf	North - 1' SOIL	South - Surf	South - 1' SOIL	East - Surf	East - 1' SOIL
	Analyzed:	Field Id:	Depth:	Matrix:	Sampled:	Jun-14-17 10:30	Jun-14-17 10:30	Jun-14-17 10:30	Jun-14-17 10:30	Jun-14-17 10:30	Jun-14-17 10:30
	Units/RL:	Field Id:	Depth:	Matrix:	Sampled:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Units/RL:	Field Id:	Depth:	Matrix:	Sampled:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
BTEX by EPA 8021B	Benzene	Jun-26-17 11:00	Jun-26-17 16:30	Jun-26-17 16:30	Jun-26-17 16:30	<0.00202	<0.00202	<0.00199	<0.00200	<0.00201	<0.00199
	Toluene	Jun-26-17 13:50	Jun-27-17 08:45	Jun-26-17 23:08	Jun-26-17 23:40	0.00202	0.00224	0.00199	0.00200	0.00201	0.00199
	Ethylbenzene	Jun-26-17 13:50	Jun-27-17 08:45	Jun-26-17 23:08	Jun-26-17 23:40	0.00202	0.00202	0.00199	0.00200	0.00201	0.00199
	m_p-Xylenes	Jun-26-17 13:50	Jun-27-17 08:45	Jun-26-17 23:08	Jun-26-17 23:40	0.00403	0.00405	0.00398	0.00400	0.00402	0.00398
	o-Xylene	Jun-26-17 13:50	Jun-27-17 08:45	Jun-26-17 23:08	Jun-26-17 23:40	0.00202	0.00202	0.00199	0.00200	0.00201	0.00199
	Total Xylenes	Jun-26-17 13:50	Jun-27-17 08:45	Jun-26-17 23:08	Jun-26-17 23:40	0.00202	0.00202	0.00199	0.00200	0.00201	0.00199
Chloride by EPA 300	Total BTEX	Jun-26-17 13:50	Jun-27-17 08:45	Jun-26-17 23:08	Jun-26-17 23:40	0.00202	0.00224	0.00199	0.00200	0.00201	0.00199
	Extracted:	Jun-27-17 12:00	Jun-27-17 12:00	Jun-27-17 12:00	Jun-27-17 12:00	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Analyzed:	Jun-27-17 15:36	Jun-27-17 15:59	Jun-27-17 16:06	Jun-27-17 16:22	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
TPH By SW8015 Mod	Chloride	545	4.91	295	4.97	56.6	56.6	295	50.7	281	61.2
	Extracted:	Jun-24-17 12:00	Jun-24-17 12:00	Jun-24-17 12:00	Jun-24-17 12:00	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Analyzed:	Jun-24-17 16:19	Jun-24-17 17:19	Jun-24-17 17:40	Jun-24-17 18:20	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Units/RL:	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
	C6-C10 Gasoline Range Hydrocarbons	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Total TPH	C10-C28 Diesel Range Organics	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
	C28-C35 Oil Range Hydrocarbons	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
	Total TPH	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0

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

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

Kelsey Brooks

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 555791
COG Operating LLC, Artesia, NM
Project Name: Gettysburg State #1 H

Date Received in Lab: Tue Jun-20-17 10:05 am
Report Date: 28-JUN-17
Project Manager: Kelsey Brooks

Project Id:
Contact: Aaron Lieb
Project Location: Gettysburg ST. #1 H

<i>Analysis Requested</i>		<i>Lab Id:</i>	<i>Field Id:</i>	<i>Depth:</i>	<i>Matrix:</i>	<i>Sampled:</i>	<i>Extracted:</i>	<i>Analyzed:</i>	<i>Units/RL:</i>
BTEX by EPA 8021B		555791-007	West - Surf	SOIL	Jun-14-17 10:30	Jun-26-17 16:30	Jun-27-17 00:12	mg/kg	RL
Benzene									
Toluene									
Ethylbenzene									
m_p-Xylenes									
o-Xylene									
Total Xylenes									
Total BTEX									
Chloride by EPA 300									
Chloride									
TPH By SW8015 Mod									
C6-C10 Gasoline Range Hydrocarbons									
C10-C28 Diesel Range Organics									
C28-C35 Oil Range Hydrocarbons									
Total TPH									


Kelsey Brooks
Project Manager

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

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

Analytical Report 555791

for
COG Operating LLC

Project Manager: Aaron Lieb

Gettysburg State #1 H

28-JUN-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

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

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

Xenco-San Antonio: Texas (T104704534)

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

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



28-JUN-17

Project Manager: **Aaron Lieb**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **555791**

Gettysburg State #1 H

Project Address: Gettysburg ST. #1 H

Aaron Lieb:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 555791. 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. 555791 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Kelsey Brooks'.

Kelsey Brooks

Project Manager

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 555791****COG Operating LLC, Artesia, NM**

Gettysburg State #1 H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North - Surf	S	06-14-17 10:30		555791-001
North - 1'	S	06-14-17 10:30	- 1 ft	555791-002
South - Surf	S	06-14-17 10:30		555791-003
South - 1'	S	06-14-17 10:30	- 1 ft	555791-004
East - Surf	S	06-14-17 10:30		555791-005
East - 1'	S	06-14-17 10:30	- 1 ft	555791-006
West - Surf	S	06-14-17 10:30		555791-007
West - 1'	S	06-14-17 10:30	- 1 ft	555791-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Gettysburg State #1 H

Project ID:

Work Order Number(s): 555791

Report Date: 28-JUN-17

Date Received: 06/20/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3020734 BTEX by EPA 8021B

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

Batch: LBA-3020817 BTEX by EPA 8021B

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



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **North - Surf**

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-001

Date Collected: 06.14.17 10.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 06.27.17 12.00

Basis: Wet Weight

Seq Number: 3020942

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	545	4.91	mg/kg	06.27.17 15.36		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.24.17 12.00

Basis: Wet Weight

Seq Number: 3020966

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 16.19	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 16.19	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 16.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 16.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	06.24.17 16.19	
o-Terphenyl	84-15-1	110	%	70-135	06.24.17 16.19	



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **North - Surf**

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-001

Date Collected: 06.14.17 10.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.26.17 11.00

Basis: Wet Weight

Seq Number: 3020734

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
m_p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.26.17 13.50	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.26.17 13.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	119	%	80-120	06.26.17 13.50		
4-Bromofluorobenzene	460-00-4	111	%	80-120	06.26.17 13.50		



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **North - 1'**
Lab Sample Id: 555791-002

Matrix: Soil
Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300
Tech: MGO
Analyst: MGO
Seq Number: 3020942

Prep Method: E300P
% Moisture:
Date Prep: 06.27.17 12.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	56.6	4.97	mg/kg	06.27.17 15.59		1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3020966

Prep Method: TX1005P
% Moisture:
Date Prep: 06.24.17 12.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 17.19	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 17.19	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 17.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 17.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	108	%	70-135	06.24.17 17.19		
o-Terphenyl	84-15-1	104	%	70-135	06.24.17 17.19		



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **North - 1'**
Lab Sample Id: 555791-002

Matrix: Soil
Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.26.17 16.30

Basis: Wet Weight

Seq Number: 3020817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
Toluene	108-88-3	0.00224	0.00202	mg/kg	06.27.17 08.45		1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
m_p-Xylenes	179601-23-1	<0.00405	0.00405	mg/kg	06.27.17 08.45	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.27.17 08.45	U	1
Total BTEX		0.00224	0.00202	mg/kg	06.27.17 08.45		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	80-120	06.27.17 08.45		
1,4-Difluorobenzene	540-36-3	102	%	80-120	06.27.17 08.45		



Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: South - Surf

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-003

Date Collected: 06.14.17 10.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 06.27.17 12.00

Basis: Wet Weight

Seq Number: 3020942

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	295	4.97	mg/kg	06.27.17 16.06		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.24.17 12.00

Basis: Wet Weight

Seq Number: 3020966

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 17.40	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 17.40	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 17.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 17.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	06.24.17 17.40	
o-Terphenyl	84-15-1	107	%	70-135	06.24.17 17.40	



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **South - Surf**

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-003

Date Collected: 06.14.17 10.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.26.17 16.30

Basis: Wet Weight

Seq Number: 3020817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.26.17 23.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.26.17 23.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	83	%	80-120	06.26.17 23.08		
4-Bromofluorobenzene	460-00-4	87	%	80-120	06.26.17 23.08		



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **South - 1'**
Lab Sample Id: 555791-004

Matrix: Soil
Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300
Tech: MGO
Analyst: MGO
Seq Number: 3020942

Prep Method: E300P
% Moisture:
Date Prep: 06.27.17 12.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	50.7	4.96	mg/kg	06.27.17 16.14		1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3020966

Prep Method: TX1005P
% Moisture:
Date Prep: 06.24.17 12.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 18.00	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 18.00	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 18.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 18.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	06.24.17 18.00	
o-Terphenyl	84-15-1	103	%	70-135	06.24.17 18.00	



Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **South - 1'**
 Lab Sample Id: 555791-004

Matrix: Soil
 Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3020817

Date Prep: 06.26.17 16.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
m_p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.26.17 23.24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.26.17 23.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	80-120	06.26.17 23.24		
1,4-Difluorobenzene	540-36-3	115	%	80-120	06.26.17 23.24		



Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **East - Surf**

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-005

Date Collected: 06.14.17 10.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 06.27.17 12.00

Basis: Wet Weight

Seq Number: 3020942

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	281	4.98	mg/kg	06.27.17 16.22		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.24.17 12.00

Basis: Wet Weight

Seq Number: 3020966

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 18.20	U	1
C10-C28 Diesel Range Organics	C10C28DRO	328	15.0	mg/kg	06.24.17 18.20		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	81.3	15.0	mg/kg	06.24.17 18.20		1
Total TPH	PHC635	409	15.0	mg/kg	06.24.17 18.20		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	06.24.17 18.20	
o-Terphenyl	84-15-1	103	%	70-135	06.24.17 18.20	



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **East - Surf**

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-005

Date Collected: 06.14.17 10.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.26.17 16.30

Basis: Wet Weight

Seq Number: 3020817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
m_p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	06.26.17 23.40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	06.26.17 23.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	80-120	06.26.17 23.40		
1,4-Difluorobenzene	540-36-3	96	%	80-120	06.26.17 23.40		



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **East - 1'**
Lab Sample Id: 555791-006

Matrix: Soil
Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300
Tech: MGO
Analyst: MGO
Seq Number: 3020942

Date Prep: 06.27.17 12.00

Prep Method: E300P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.2	4.92	mg/kg	06.27.17 16.44		1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3020966

Date Prep: 06.24.17 12.00

Prep Method: TX1005P
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 18.40	U	1
C10-C28 Diesel Range Organics	C10C28DRO	43.1	15.0	mg/kg	06.24.17 18.40		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 18.40	U	1
Total TPH	PHC635	43.1	15.0	mg/kg	06.24.17 18.40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	06.24.17 18.40	
o-Terphenyl	84-15-1	105	%	70-135	06.24.17 18.40	



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **East - 1'**
Lab Sample Id: 555791-006

Matrix: Soil
Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3020817

Date Prep: 06.26.17 16.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
m_p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.26.17 23.56	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.26.17 23.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	80-120	06.26.17 23.56		
1,4-Difluorobenzene	540-36-3	107	%	80-120	06.26.17 23.56		



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **West - Surf**

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-007

Date Collected: 06.14.17 10.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 06.27.17 12.00

Basis: Wet Weight

Seq Number: 3020942

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	455	4.97	mg/kg	06.27.17 16.52		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.24.17 12.00

Basis: Wet Weight

Seq Number: 3020966

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 19.00	U	1
C10-C28 Diesel Range Organics	C10C28DRO	22.2	15.0	mg/kg	06.24.17 19.00		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 19.00	U	1
Total TPH	PHC635	22.2	15.0	mg/kg	06.24.17 19.00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	06.24.17 19.00	
o-Terphenyl	84-15-1	105	%	70-135	06.24.17 19.00	



Certificate of Analytical Results 555791



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **West - Surf**

Matrix: Soil

Date Received: 06.20.17 10.05

Lab Sample Id: 555791-007

Date Collected: 06.14.17 10.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.26.17 16.30

Basis: Wet Weight

Seq Number: 3020817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.27.17 00.12	U	1
Toluene	108-88-3	0.00412	0.00198	mg/kg	06.27.17 00.12		1
Ethylbenzene	100-41-4	0.00366	0.00198	mg/kg	06.27.17 00.12		1
m_p-Xylenes	179601-23-1	0.0101	0.00396	mg/kg	06.27.17 00.12		1
o-Xylene	95-47-6	0.00798	0.00198	mg/kg	06.27.17 00.12		1
Total Xylenes	1330-20-7	0.0181	0.00198	mg/kg	06.27.17 00.12		1
Total BTEX		0.0259	0.00198	mg/kg	06.27.17 00.12		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	91		%	80-120	06.27.17 00.12	
1,4-Difluorobenzene	540-36-3	112		%	80-120	06.27.17 00.12	



Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **West - 1'**
 Lab Sample Id: 555791-008

Matrix: Soil
 Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
 Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300
 Tech: MGO
 Analyst: MGO
 Seq Number: 3020942

Date Prep: 06.27.17 12.00

Prep Method: E300P
 % Moisture:
 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	25.8	4.98	mg/kg	06.27.17 17.00		1

Analytical Method: TPH By SW8015 Mod
 Tech: ARM
 Analyst: ARM
 Seq Number: 3020966

Date Prep: 06.24.17 12.00

Prep Method: TX1005P
 % Moisture:
 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 19.20	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 19.20	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 19.20	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 19.20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	103	%	70-135	06.24.17 19.20		
o-Terphenyl	84-15-1	103	%	70-135	06.24.17 19.20		



Certificate of Analytical Results 555791

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **West - 1'**
 Lab Sample Id: 555791-008

Matrix: Soil
 Date Collected: 06.14.17 10.30

Date Received: 06.20.17 10.05
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.26.17 16.30

Basis: Wet Weight

Seq Number: 3020817

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
m_p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.27.17 00.28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.27.17 00.28	U	1
Surrogate							
	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	113	%	80-120	06.27.17 00.28		
1,4-Difluorobenzene	540-36-3	98	%	80-120	06.27.17 00.28		



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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(602) 437-0330	



COG Operating LLC

Gettysburg State #1 H

Analytical Method: Chloride by EPA 300

Seq Number: 3020942

MB Sample Id: 726858-1-BLK

Matrix: Solid

LCS Sample Id: 726858-1-BKS

Prep Method: E300P

Date Prep: 06.27.17

LCSD Sample Id: 726858-1-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	241	96	235	94	90-110	3	20	mg/kg	06.27.17 15:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3020942

Parent Sample Id: 555791-001

Matrix: Soil

MS Sample Id: 555791-001 S

Prep Method: E300P

Date Prep: 06.27.17

MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	545	246	770	91	768	91	90-110	0	20	mg/kg	06.27.17 15:44	

Analytical Method: Chloride by EPA 300

Seq Number: 3020942

Parent Sample Id: 555794-003

Matrix: Soil

MS Sample Id: 555794-003 S

Prep Method: E300P

Date Prep: 06.27.17

MSD Sample Id: 555794-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	286	114	284	114	90-110	1	20	mg/kg	06.27.17 17:30	X

Analytical Method: TPH By SW8015 Mod

Seq Number: 3020966

MB Sample Id: 726684-1-BLK

Matrix: Solid

LCS Sample Id: 726684-1-BKS

Prep Method: TX1005P

Date Prep: 06.24.17

LCSD Sample Id: 726684-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1190	119	1060	106	70-135	12	35	mg/kg	06.24.17 14:08	
C10-C28 Diesel Range Organics	<15.0	1000	1140	114	1020	102	70-135	11	35	mg/kg	06.24.17 14:08	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	79		118		110		70-135	%	06.24.17 14:08
o-Terphenyl	85		117		108		70-135	%	06.24.17 14:08



COG Operating LLC

Gettysburg State #1 H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3020966

Parent Sample Id: 555791-001

Matrix: Soil

MS Sample Id: 555791-001 S

Prep Method: TX1005P

Date Prep: 06.24.17

MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1090	109	1020	102	70-135	7	35	mg/kg	06.24.17 16:39	
C10-C28 Diesel Range Organics	<15.0	1000	1080	108	1060	106	70-135	2	35	mg/kg	06.24.17 16:39	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		104		70-135	%	06.24.17 16:39
o-Terphenyl	85		102		70-135	%	06.24.17 16:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020734

MB Sample Id: 726754-1-BLK

Matrix: Solid

LCS Sample Id: 726754-1-BKS

Prep Method: SW5030B

Date Prep: 06.26.17

LCSD Sample Id: 726754-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0935	94	0.0918	92	70-130	2	35	mg/kg	06.26.17 12:13	
Toluene	<0.00199	0.0994	0.0853	86	0.0865	87	70-130	1	35	mg/kg	06.26.17 12:13	
Ethylbenzene	<0.00199	0.0994	0.0942	95	0.0913	91	71-129	3	35	mg/kg	06.26.17 12:13	
m_p-Xylenes	<0.00398	0.199	0.169	85	0.165	83	70-135	2	35	mg/kg	06.26.17 12:13	
o-Xylene	<0.00199	0.0994	0.0902	91	0.0885	89	71-133	2	35	mg/kg	06.26.17 12:13	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		96		82		80-120	%	06.26.17 12:13
4-Bromofluorobenzene	101		96		94		80-120	%	06.26.17 12:13

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020817

MB Sample Id: 726772-1-BLK

Matrix: Solid

LCS Sample Id: 726772-1-BKS

Prep Method: SW5030B

Date Prep: 06.26.17

LCSD Sample Id: 726772-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.107	108	0.101	101	70-130	6	35	mg/kg	06.26.17 21:15	
Toluene	<0.00199	0.0994	0.0991	100	0.103	103	70-130	4	35	mg/kg	06.26.17 21:15	
Ethylbenzene	<0.00199	0.0994	0.106	107	0.106	106	71-129	0	35	mg/kg	06.26.17 21:15	
m_p-Xylenes	<0.00398	0.199	0.193	97	0.185	93	70-135	4	35	mg/kg	06.26.17 21:15	
o-Xylene	<0.00199	0.0994	0.108	109	0.103	103	71-133	5	35	mg/kg	06.26.17 21:15	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		110		87		80-120	%	06.26.17 21:15
4-Bromofluorobenzene	87		118		90		80-120	%	06.26.17 21:15



COG Operating LLC

Gettysburg State #1 H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020734

Parent Sample Id: 555791-001

Matrix: Soil

MS Sample Id: 555791-001 S

Prep Method: SW5030B

Date Prep: 06.26.17

MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0790	79	0.0885	89	70-130	11	35	mg/kg	06.26.17 12:46	
Toluene	<0.00200	0.100	0.0770	77	0.0778	78	70-130	1	35	mg/kg	06.26.17 12:46	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.0862	87	71-129	4	35	mg/kg	06.26.17 12:46	
m_p-Xylenes	<0.00401	0.200	0.149	75	0.152	76	70-135	2	35	mg/kg	06.26.17 12:46	
o-Xylene	<0.00200	0.100	0.0837	84	0.0870	87	71-133	4	35	mg/kg	06.26.17 12:46	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		105		80-120	%	06.26.17 12:46
4-Bromofluorobenzene	120		110		80-120	%	06.26.17 12:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020817

Parent Sample Id: 555831-002

Matrix: Soil

MS Sample Id: 555831-002 S

Prep Method: SW5030B

Date Prep: 06.26.17

MSD Sample Id: 555831-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0955	96	0.0951	95	70-130	0	35	mg/kg	06.26.17 21:47	
Toluene	<0.00200	0.100	0.0847	85	0.0843	84	70-130	0	35	mg/kg	06.26.17 21:47	
Ethylbenzene	<0.00200	0.100	0.0884	88	0.0942	94	71-129	6	35	mg/kg	06.26.17 21:47	
m_p-Xylenes	<0.00401	0.200	0.165	83	0.168	84	70-135	2	35	mg/kg	06.26.17 21:47	
o-Xylene	<0.00200	0.100	0.0900	90	0.101	101	71-133	12	35	mg/kg	06.26.17 21:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	119		119		80-120	%	06.26.17 21:47
4-Bromofluorobenzene	116		119		80-120	%	06.26.17 21:47



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

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

Phoenix, Arizona (480-355-0900)

CHAIN OF CUSTODY

Page — of —

[illegible]



Client: COG Operating LLC

Date/ Time Received: 06/20/2017 10:05:00 AM

Work Order #: 555791

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Date: 06/21/2017

Checklist reviewed by:

Kelsey Brooks

Date: 06/21/2017



Certificate of Analysis Summary 555794

COG Operating LLC, Artesia, NM

Project Name: Gettysburg State #1 H

Received by OCD: 12/5/2022 8:54:56 AM

Page 65 of 198

Date Received in Lab: Tue Jun-20-17 10:05 am
Report Date: 28-JUN-17
Project Manager: Kelsey Brooks

Project Id:
Contact: Aaron Lieb
Project Location: Gettysburg ST. # 1 H

Analysis Requested	Lab Id:	555794-001	555794-002	555794-003	555794-004	555794-005
	Field Id:	TI - Surf	TI - 1'	TI - 2'	TI - 3'	TI - 4'
	Depth:		1 ft	2 ft	3 ft	4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jun-14-17 09:00	Jun-14-17 09:00	Jun-14-17 09:00	Jun-14-17 09:00	Jun-14-17 09:00
BTEX by EPA 8021B	Extracted:	Jun-27-17 10:30	Jun-26-17 16:30	Jun-27-17 10:30	Jun-26-17 11:00	Jun-26-17 11:00
	Analyzed:	Jun-27-17 14:42	Jun-27-17 08:29	Jun-27-17 14:58	Jun-26-17 17:45	Jun-26-17 17:28
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Benzene	27.3 0.998	<0.00200 0.00200	23.4 1.00	<0.00200 0.00200	<0.00202 0.00202
	Toluene	198 0.998	0.00525 0.00200	190 1.00	<0.00200 0.00200	<0.00202 0.00202
Chloride by EPA 300	Extracted:	Jun-27-17 12:00	Jun-27-17 12:00	Jun-27-17 12:00	Jun-27-17 12:00	Jun-27-17 12:00
	Analyzed:	Jun-27-17 17:07	Jun-27-17 17:15	Jun-27-17 17:22	Jun-27-17 17:45	Jun-27-17 17:53
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Chloride	307 4.97	<4.98 4.98	<5.00 5.00	38.8 4.92	88.7 5.00
TPH By SW8015 Mod	Extracted:	Jun-24-17 12:00	Jun-24-17 12:00	Jun-24-17 12:00	Jun-24-17 12:00	Jun-24-17 12:00
	Analyzed:	Jun-24-17 19:41	Jun-24-17 20:02	Jun-24-17 21:04	Jun-24-17 21:25	Jun-24-17 21:46
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	C6-C10 Gasoline Range Hydrocarbons	13700 75.0	<15.0 15.0	4740 15.0	<15.0 15.0	<15.0 15.0
	C10-C28 Diesel Range Organics	22800 75.0	<15.0 15.0	4960 15.0	<15.0 15.0	<15.0 15.0
Total TPH	C28-C35 Oil Range Hydrocarbons	2730 75.0	<15.0 15.0	798 15.0	<15.0 15.0	<15.0 15.0
	Total TPH	74800 75.0	<15.0 15.0	20200 15.0	<15.0 15.0	<15.0 15.0

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

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

Kelsey Brooks

Kelsey Brooks
Project Manager

Analytical Report 555794

for
COG Operating LLC

Project Manager: Aaron Lieb

Gettysburg State #1 H

28-JUN-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

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

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

Xenco-San Antonio: Texas (T104704534)

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

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



28-JUN-17

Project Manager: **Aaron Lieb**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **555794**

Gettysburg State #1 H

Project Address: Gettysburg ST. # 1 H

Aaron Lieb:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 555794. 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. 555794 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Kelsey Brooks'.

Kelsey Brooks

Project Manager

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**Sample Cross Reference 555794****COG Operating LLC, Artesia, NM**

Gettysburg State #1 H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TI - Surf	S	06-14-17 09:00		555794-001
TI - 1'	S	06-14-17 09:00	- 1 ft	555794-002
TI - 2'	S	06-14-17 09:00	- 2 ft	555794-003
TI - 3'	S	06-14-17 09:00	- 3 ft	555794-004
TI - 4'	S	06-14-17 09:00	- 4 ft	555794-005

**CASE NARRATIVE****Client Name: COG Operating LLC****Project Name: Gettysburg State #1 H**

Project ID:

Work Order Number(s): 555794

Report Date: 28-JUN-17

Date Received: 06/20/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3020734 BTEX by EPA 8021B

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

Batch: LBA-3020817 BTEX by EPA 8021B

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

Batch: LBA-3020887 BTEX by EPA 8021B

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

Batch: LBA-3020942 Chloride by EPA 300

Lab Sample ID 555794-003 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 555794-001, -002, -003, -004, -005.

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



Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - Surf**
 Lab Sample Id: 555794-001

Matrix: Soil
 Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MGO

% Moisture:

Analyst: MGO

Date Prep: 06.27.17 12.00

Basis: Wet Weight

Seq Number: 3020942

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	307	4.97	mg/kg	06.27.17 17.07		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 06.24.17 12.00

Basis: Wet Weight

Seq Number: 3020966

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	13700	75.0	mg/kg	06.24.17 19.41		5
C10-C28 Diesel Range Organics	C10C28DRO	22800	75.0	mg/kg	06.24.17 19.41		5
C28-C35 Oil Range Hydrocarbons	PHCG2835	2730	75.0	mg/kg	06.24.17 19.41		5
Total TPH	PHC635	74800	75.0	mg/kg	06.24.17 19.41		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	06.24.17 19.41	
o-Terphenyl	84-15-1	91	%	70-135	06.24.17 19.41	



Certificate of Analytical Results 555794



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - Surf**
Lab Sample Id: 555794-001

Matrix: Soil
Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.27.17 10.30

Basis: Wet Weight

Seq Number: 3020887

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	27.3	0.998	mg/kg	06.27.17 14.42		500
Toluene	108-88-3	198	0.998	mg/kg	06.27.17 14.42		500
Ethylbenzene	100-41-4	133	0.998	mg/kg	06.27.17 14.42		500
m_p-Xylenes	179601-23-1	258	2.00	mg/kg	06.27.17 14.42		500
o-Xylene	95-47-6	109	0.998	mg/kg	06.27.17 14.42		500
Total Xylenes	1330-20-7	367	0.998	mg/kg	06.27.17 14.42		500
Total BTEX		725	0.998	mg/kg	06.27.17 14.42		500
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	87	%	80-120	06.27.17 14.42		
1,4-Difluorobenzene	540-36-3	87	%	80-120	06.27.17 14.42		



Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 1'**
 Lab Sample Id: 555794-002

Matrix: Soil
 Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
 Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300
 Tech: MGO
 Analyst: MGO
 Seq Number: 3020942

Prep Method: E300P
 % Moisture:
 Basis: Wet Weight
 Date Prep: 06.27.17 12.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	06.27.17 17.15	U	1

Analytical Method: TPH By SW8015 Mod
 Tech: ARM
 Analyst: ARM
 Seq Number: 3020966

Prep Method: TX1005P
 % Moisture:
 Basis: Wet Weight
 Date Prep: 06.24.17 12.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 20.02	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 20.02	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 20.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 20.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	06.24.17 20.02	
o-Terphenyl	84-15-1	98	%	70-135	06.24.17 20.02	



Certificate of Analytical Results 555794



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 1'**
Lab Sample Id: 555794-002

Matrix: Soil
Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3020817

Date Prep: 06.26.17 16.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.17 08.29	U	1
Toluene	108-88-3	0.00525	0.00200	mg/kg	06.27.17 08.29		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.17 08.29	U	1
m_p-Xylenes	179601-23-1	0.00438	0.00400	mg/kg	06.27.17 08.29		1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.17 08.29	U	1
Total Xylenes	1330-20-7	0.00438	0.00200	mg/kg	06.27.17 08.29		1
Total BTEX		0.00963	0.00200	mg/kg	06.27.17 08.29		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	83	%	80-120	06.27.17 08.29		
4-Bromofluorobenzene	460-00-4	88	%	80-120	06.27.17 08.29		



Certificate of Analytical Results 555794



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 2'**
Lab Sample Id: 555794-003

Matrix: Soil
Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300
Tech: MGO
Analyst: MGO
Seq Number: 3020942

Prep Method: E300P
% Moisture:
Date Prep: 06.27.17 12.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	06.27.17 17.22	U	1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3020966

Prep Method: TX1005P
% Moisture:
Date Prep: 06.24.17 12.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	4740	15.0	mg/kg	06.24.17 21.04		1
C10-C28 Diesel Range Organics	C10C28DRO	4960	15.0	mg/kg	06.24.17 21.04		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	798	15.0	mg/kg	06.24.17 21.04		1
Total TPH	PHC635	20200	15.0	mg/kg	06.24.17 21.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	125	%	70-135	06.24.17 21.04	
o-Terphenyl	84-15-1	96	%	70-135	06.24.17 21.04	



Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 2'**
 Lab Sample Id: 555794-003

Matrix: Soil
 Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
 Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.27.17 10.30

Basis: Wet Weight

Seq Number: 3020887

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	23.4	1.00	mg/kg	06.27.17 14.58		500
Toluene	108-88-3	190	1.00	mg/kg	06.27.17 14.58		500
Ethylbenzene	100-41-4	88.3	1.00	mg/kg	06.27.17 14.58		500
m_p-Xylenes	179601-23-1	168	2.01	mg/kg	06.27.17 14.58		500
o-Xylene	95-47-6	63.2	1.00	mg/kg	06.27.17 14.58		500
Total Xylenes	1330-20-7	231	1.00	mg/kg	06.27.17 14.58		500
Total BTEX		533	1.00	mg/kg	06.27.17 14.58		500
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	83	%	80-120	06.27.17 14.58		
1,4-Difluorobenzene	540-36-3	100	%	80-120	06.27.17 14.58		



Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 3'**
 Lab Sample Id: 555794-004

Matrix: Soil
 Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
 Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: MGO

Analyst: MGO

Seq Number: 3020942

Date Prep: 06.27.17 12.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	38.8	4.92	mg/kg	06.27.17 17.45		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3020966

Date Prep: 06.24.17 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 21.25	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 21.25	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 21.25	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 21.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	06.24.17 21.25	
o-Terphenyl	84-15-1	104	%	70-135	06.24.17 21.25	



Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 3'**
 Lab Sample Id: 555794-004

Matrix: Soil
 Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3020734

Date Prep: 06.26.17 11.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
m_p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.26.17 17.45	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.26.17 17.45	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4		93	%	80-120	06.26.17 17.45	
1,4-Difluorobenzene	540-36-3		105	%	80-120	06.26.17 17.45	



Certificate of Analytical Results 555794

COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 4'**
 Lab Sample Id: 555794-005

Matrix: Soil
 Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
 Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MGO

Analyst: MGO

Seq Number: 3020942

Date Prep: 06.27.17 12.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	88.7	5.00	mg/kg	06.27.17 17.53		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3020966

Date Prep: 06.24.17 12.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	06.24.17 21.46	U	1
C10-C28 Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	06.24.17 21.46	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	06.24.17 21.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	06.24.17 21.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	06.24.17 21.46	
o-Terphenyl	84-15-1	112	%	70-135	06.24.17 21.46	



Certificate of Analytical Results 555794



COG Operating LLC, Artesia, NM

Gettysburg State #1 H

Sample Id: **TI - 4'**
Lab Sample Id: 555794-005

Matrix: Soil
Date Collected: 06.14.17 09.00

Date Received: 06.20.17 10.05
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 06.26.17 11.00

Basis: Wet Weight

Seq Number: 3020734

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
m_p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	06.26.17 17.28	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.26.17 17.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	80-120	06.26.17 17.28		
4-Bromofluorobenzene	460-00-4	110	%	80-120	06.26.17 17.28		



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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(432) 563-1800	(432) 563-1713
(602) 437-0330	



COG Operating LLC

Gettysburg State #1 H

Analytical Method: Chloride by EPA 300

Seq Number: 3020942

MB Sample Id: 726858-1-BLK

Matrix: Solid

LCS Sample Id: 726858-1-BKS

Prep Method: E300P

Date Prep: 06.27.17

LCSD Sample Id: 726858-1-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	241	96	235	94	90-110	3	20	mg/kg	06.27.17 15:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3020942

Parent Sample Id: 555791-001

Matrix: Soil

MS Sample Id: 555791-001 S

Prep Method: E300P

Date Prep: 06.27.17

MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	545	246	770	91	768	91	90-110	0	20	mg/kg	06.27.17 15:44	

Analytical Method: Chloride by EPA 300

Seq Number: 3020942

Parent Sample Id: 555794-003

Matrix: Soil

MS Sample Id: 555794-003 S

Prep Method: E300P

Date Prep: 06.27.17

MSD Sample Id: 555794-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	286	114	284	114	90-110	1	20	mg/kg	06.27.17 17:30	X

Analytical Method: TPH By SW8015 Mod

Seq Number: 3020966

MB Sample Id: 726684-1-BLK

Matrix: Solid

LCS Sample Id: 726684-1-BKS

Prep Method: TX1005P

Date Prep: 06.24.17

LCSD Sample Id: 726684-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1190	119	1060	106	70-135	12	35	mg/kg	06.24.17 14:08	
C10-C28 Diesel Range Organics	<15.0	1000	1140	114	1020	102	70-135	11	35	mg/kg	06.24.17 14:08	

Surrogate

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	79		118		110		70-135	%	06.24.17 14:08
o-Terphenyl	85		117		108		70-135	%	06.24.17 14:08



COG Operating LLC

Gettysburg State #1 H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3020966

Parent Sample Id: 555791-001

Matrix: Soil

MS Sample Id: 555791-001 S

Prep Method: TX1005P

Date Prep: 06.24.17

MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	1090	109	1020	102	70-135	7	35	mg/kg	06.24.17 16:39	
C10-C28 Diesel Range Organics	<15.0	1000	1080	108	1060	106	70-135	2	35	mg/kg	06.24.17 16:39	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	94		104		70-135	%	06.24.17 16:39
o-Terphenyl	85		102		70-135	%	06.24.17 16:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020734

MB Sample Id: 726754-1-BLK

Matrix: Solid

LCS Sample Id: 726754-1-BKS

Prep Method: SW5030B

Date Prep: 06.26.17

LCSD Sample Id: 726754-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0935	94	0.0918	92	70-130	2	35	mg/kg	06.26.17 12:13	
Toluene	<0.00199	0.0994	0.0853	86	0.0865	87	70-130	1	35	mg/kg	06.26.17 12:13	
Ethylbenzene	<0.00199	0.0994	0.0942	95	0.0913	91	71-129	3	35	mg/kg	06.26.17 12:13	
m_p-Xylenes	<0.00398	0.199	0.169	85	0.165	83	70-135	2	35	mg/kg	06.26.17 12:13	
o-Xylene	<0.00199	0.0994	0.0902	91	0.0885	89	71-133	2	35	mg/kg	06.26.17 12:13	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		96		82		80-120	%	06.26.17 12:13
4-Bromofluorobenzene	101		96		94		80-120	%	06.26.17 12:13

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020817

MB Sample Id: 726772-1-BLK

Matrix: Solid

LCS Sample Id: 726772-1-BKS

Prep Method: SW5030B

Date Prep: 06.26.17

LCSD Sample Id: 726772-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.107	108	0.101	101	70-130	6	35	mg/kg	06.26.17 21:15	
Toluene	<0.00199	0.0994	0.0991	100	0.103	103	70-130	4	35	mg/kg	06.26.17 21:15	
Ethylbenzene	<0.00199	0.0994	0.106	107	0.106	106	71-129	0	35	mg/kg	06.26.17 21:15	
m_p-Xylenes	<0.00398	0.199	0.193	97	0.185	93	70-135	4	35	mg/kg	06.26.17 21:15	
o-Xylene	<0.00199	0.0994	0.108	109	0.103	103	71-133	5	35	mg/kg	06.26.17 21:15	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		110		87		80-120	%	06.26.17 21:15
4-Bromofluorobenzene	87		118		90		80-120	%	06.26.17 21:15



COG Operating LLC

Gettysburg State #1 H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020887

MB Sample Id: 726832-1-BLK

Matrix: Solid

LCS Sample Id: 726832-1-BKS

Prep Method: SW5030B

Date Prep: 06.27.17

LCSD Sample Id: 726832-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0945	95	0.0920	92	70-130	3	35	mg/kg	06.26.17 12:13	
Toluene	<0.00201	0.100	0.0862	86	0.0867	87	70-130	1	35	mg/kg	06.26.17 12:13	
Ethylbenzene	<0.00201	0.100	0.0951	95	0.0915	92	71-129	4	35	mg/kg	06.26.17 12:13	
m_p-Xylenes	<0.00402	0.201	0.170	85	0.165	83	70-135	3	35	mg/kg	06.26.17 12:13	
o-Xylene	<0.00201	0.100	0.0911	91	0.0887	89	71-133	3	35	mg/kg	06.26.17 12:13	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		96		82		80-120	%	06.26.17 12:13
4-Bromofluorobenzene	101		96		94		80-120	%	06.26.17 12:13

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020734

Parent Sample Id: 555791-001

Matrix: Soil

MS Sample Id: 555791-001 S

Prep Method: SW5030B

Date Prep: 06.26.17

MSD Sample Id: 555791-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0790	79	0.0885	89	70-130	11	35	mg/kg	06.26.17 12:46	
Toluene	<0.00200	0.100	0.0770	77	0.0778	78	70-130	1	35	mg/kg	06.26.17 12:46	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.0862	87	71-129	4	35	mg/kg	06.26.17 12:46	
m_p-Xylenes	<0.00401	0.200	0.149	75	0.152	76	70-135	2	35	mg/kg	06.26.17 12:46	
o-Xylene	<0.00200	0.100	0.0837	84	0.0870	87	71-133	4	35	mg/kg	06.26.17 12:46	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		105		80-120	%	06.26.17 12:46
4-Bromofluorobenzene	120		110		80-120	%	06.26.17 12:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020817

Parent Sample Id: 555831-002

Matrix: Soil

MS Sample Id: 555831-002 S

Prep Method: SW5030B

Date Prep: 06.26.17

MSD Sample Id: 555831-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0955	96	0.0951	95	70-130	0	35	mg/kg	06.26.17 21:47	
Toluene	<0.00200	0.100	0.0847	85	0.0843	84	70-130	0	35	mg/kg	06.26.17 21:47	
Ethylbenzene	<0.00200	0.100	0.0884	88	0.0942	94	71-129	6	35	mg/kg	06.26.17 21:47	
m_p-Xylenes	<0.00401	0.200	0.165	83	0.168	84	70-135	2	35	mg/kg	06.26.17 21:47	
o-Xylene	<0.00200	0.100	0.0900	90	0.101	101	71-133	12	35	mg/kg	06.26.17 21:47	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	119		119		80-120	%	06.26.17 21:47
4-Bromofluorobenzene	116		119		80-120	%	06.26.17 21:47



COG Operating LLC

Gettysburg State #1 H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3020887

Parent Sample Id: 555831-003

Matrix: Soil

MS Sample Id: 555831-003 S

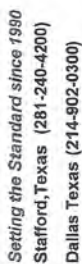
Prep Method: SW5030B

Date Prep: 06.27.17

MSD Sample Id: 555831-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0799	79	0.0923	91	70-130	14	35	mg/kg	06.27.17 11:42	
Toluene	0.00356	0.101	0.0932	89	0.119	114	70-130	24	35	mg/kg	06.27.17 11:42	
Ethylbenzene	<0.00202	0.101	0.0777	77	0.0925	92	71-129	17	35	mg/kg	06.27.17 11:42	
m_p-Xylenes	0.00978	0.202	0.161	75	0.200	95	70-135	22	35	mg/kg	06.27.17 11:42	
o-Xylene	0.00360	0.101	0.0806	76	0.100	95	71-133	21	35	mg/kg	06.27.17 11:42	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	83		94		80-120	%	06.27.17 11:42
4-Bromofluorobenzene	82		97		80-120	%	06.27.17 11:42



CHAIN OF CUSTODY

Page _____ Of _____

Phoenix, Arizona (480-355-0900)

Client / Reporting Information Company Name / Branch: COG Operating LLC Company Address: 2407 PECOS Avenue Artesia NM 88210 Email: alieb@concho.com Phone No: 575-748-1553 alieb@concho.com dheel2@concho.com rhaskell@concho.com Project Contact: Aaron Lieb Sampler's Name: Aaron Lieb		Project Information Project Name/Number: Gettysburg STAK # 11 Project Location: Gettysburg St # 11 Invoice To: COG Operating LLC Attn: Robert McNeill 600 W Illinois Midland TX 79701 PO Number:		Analytical Information Matrix Codes: W = Water S = Sol/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air	
Turnaround Time (Business days) ☐ Same Day TAT ☐ 5 Day TAT ☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ 2 Day EMERGENCY ☐ Contract TAT ☐ 3 Day EMERGENCY		Data Deliverable Information ☐ Level II Std QC ☐ Level IV (Full Data Pkg (raw data)) ☐ Level III Std QC+ Forms ☐ TRRP Level IV ☐ Level 3 (CLP Forms) ☐ UST / RG -411 ☐ TRRP Checklist			
TAT Starts Day received by Lab, if received by 5:00 pm		SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY			
Relinquished by Sampler: <i>[Signature]</i>		Received By: <i>[Signature]</i>		Date Time: 6-14-17 10:00 AM	
Relinquished by: <i>[Signature]</i>		Relinquished By: <i>[Signature]</i>		Date Time: 6-14-17 10:00 AM	
Relinquished by: <i>[Signature]</i>		Relinquished By: <i>[Signature]</i>		Date Time: 6-14-17 10:00 AM	

No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	# of bottles	Number of preserved bottles										Field Comments
						HCl	NaOH/Zn	Acetate	PHNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE		
1	T1-Surf	1	6/14/17	9:00 AM	1										TPH X	
2	T1-1'	1			1										BTEX X	
3	T1-2'	2			1										Chloride X	
4	T1-3'	3			1										TPH X	
5	T1-4'	4			1										BTEX X	
6															Chloride X	
7																
8																
9																
10																

Notes:

FED-EX / UPS: Tracking #

Received By: *[Signature]* Date Time: **6-14-17 10:00 AM**
 Relinquished By: *[Signature]* Date Time: **6-14-17 10:00 AM**
 Relinquished By: *[Signature]* Date Time: **6-14-17 10:00 AM**

On Ice ☐ Cooler Temp. **4.0 C**
 Preserved where applicable ☐ Custody Seal # **4**
 Relinquished by: *[Signature]* Date Time: **6-14-17 10:00 AM**

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns a 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.



Client: COG Operating LLC

Date/ Time Received: 06/20/2017 10:05:00 AM

Work Order #: 555794

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Date: 06/21/2017

Checklist reviewed by:

Kelsey Brooks

Date: 06/21/2017

SITE INFORMATION

Report Type: Work Plan 1RP-4805

General Site Information:

Site:	Gettysburg State Com #1H					
Company:	COG Operating LLC					
Section, Township and Range	Unit D	Sec. 16	T 23S	R 34E		
Lease Number:	API No. 30-025-41928					
County:	Lea County					
GPS:	32.3113899° N			103.4824753° W		
Surface Owner:	State					
Mineral Owner:						
Directions:	From the intersection of Hwy 128 and Delaware Basin Rd (CR 21), travel north on Delaware Basin Rd for approximately 10.10 miles, turn south onto lease road for approxiately 1.10 miles, turn west and continue for 0.30 mi, take the lease road to the north of the facility and continue west for 0.25 miles to the location.					

Release Data:

Date Released:	9/7/2017
Type Release:	Oil
Source of Contamination:	Tank
Fluid Released:	8 bbls
Fluids Recovered:	7 bbls

Official Communication:

Name:	Robert McNeil	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	One Concho Center 600 W. Illinois Ave.	4000 N. Big Spring Ste 401
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 683-7443	(432) 687-8110
Fax:	(432) 684-7137	
Email:	rmcneil@conchoresources.com	Ike.Tavaréz@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	325'-350'
Wellhead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		0

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



December 27, 2017

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

Re: Work Plan for the COG Operating LLC., Gettysburg State Com #1H, Unit D, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico. 1RP-4805.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to prepare a work plan for a release that occurred at the Gettysburg State Com #1H, Unit D, Section 16, Township 23 South, Range 34 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.3113899°, W 103.4824753 °. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on September 7, 2017, and released approximately 8 barrels of oil due to a malfunctioning oil dump on the production knock out causing a release at the day tank. A vacuum truck was used to remove the freestanding fluids, recovering 7 barrels of oil. Majority of the release migrated into the pasture measuring approximately 50' x 140'. The initial C-141 Form is included in Appendix A.

Groundwater

No water wells are listed within Section 16 in the New Mexico Office of the State Engineers database. The nearest well listed in the database is located in Section 15, approximately 1.70 miles southeast of the site, with a reported depth to groundwater of 430' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is between 325' and 350' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

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

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On October 17, 2017, COG personnel were onsite to evaluate and sample the release area. A total of (3) three trenches (T-1, T-2 and T-3) were installed in the release area to a total depth of 10.0' to 12.0' below surface. In addition, four (4) additional sample points (North, South, East, and West) were installed to a depth of 1.0' below surface in order to define the horizontal extents of the release. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The trench locations are shown on Figure 3.

Referring to Table 1, the trench areas (T-1, T-2 and T-3) either showed TPH, benzene, or total BTEX concentrations exceeding the RRALs in the subsurface soils but decline depth below the RRALs at 4.0', 7.0' and 3.0' below surface, respectively. Additionally, none of the samples collected showed any significant chloride concentrations to the shallow soils, with a chloride high of 307 mg/kg at surface. The horizontal samples (North, South, East, and West) did not show any TPH, benzene or total BTEX concentrations above the RRALs. Additionally, none of the samples collected in the areas of (North, South, East, and West) showed any significant chloride concentrations to the shallow soils.

Work Plan

Based on the laboratory results, COG proposes to remove the impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of trench (T-1) will be excavated to depth of approximately 4.0' below surface. In addition, the areas of T-2 and T-3 will be excavated to a depth of 3.0' and 4.0' respectively. Once excavated to the appropriate depth, the excavation will be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.

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



Conclusion

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

Respectfully submitted,
TETRA TECH



Clair Gonzalez
Geologist I



Ike Tavarez,
Senior Project Manager, P.G.

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

Figures

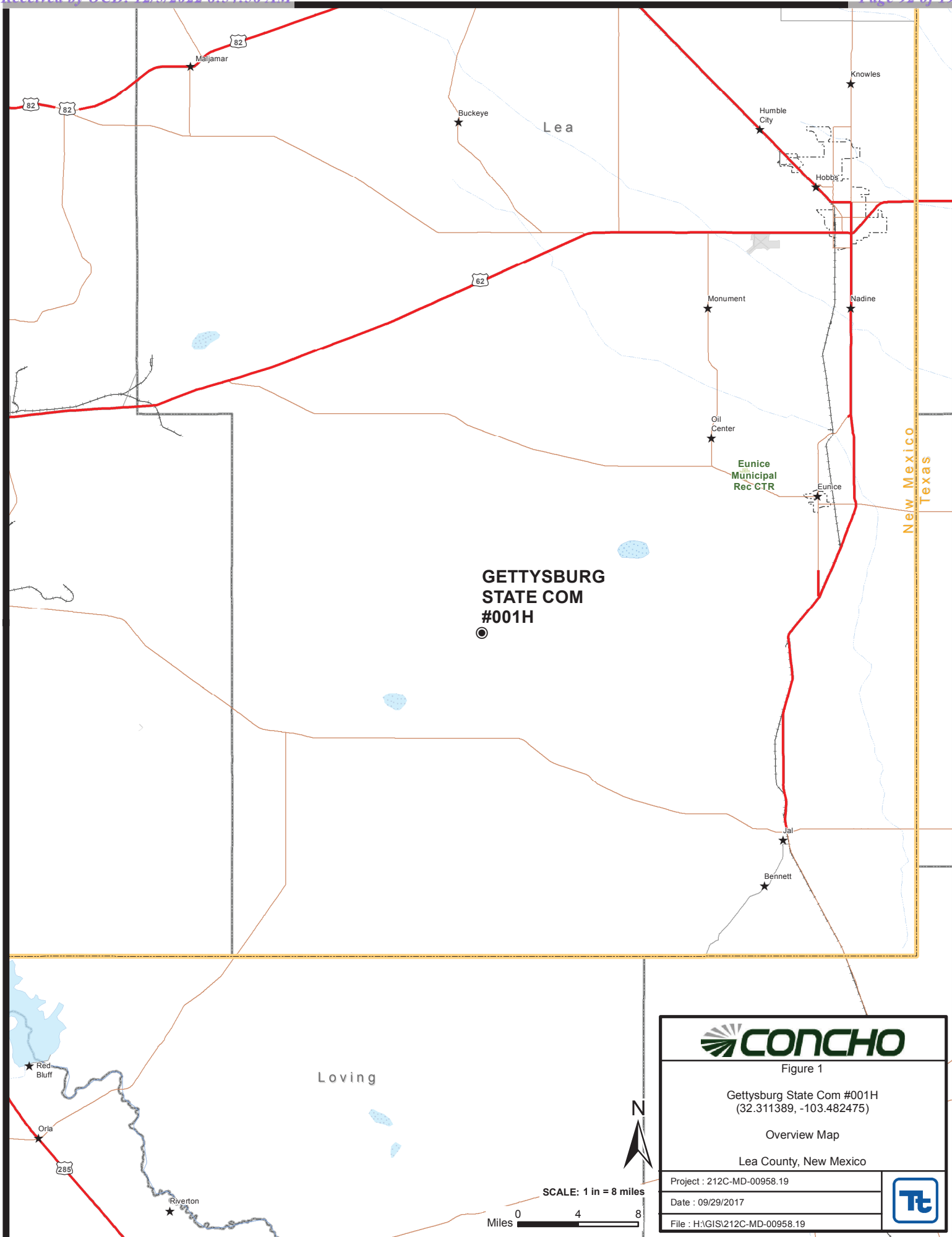


Figure 1

Gettysburg State Com #001H
(32.311389, -103.482475)

Overview Map

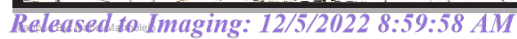
Lea County, New Mexico

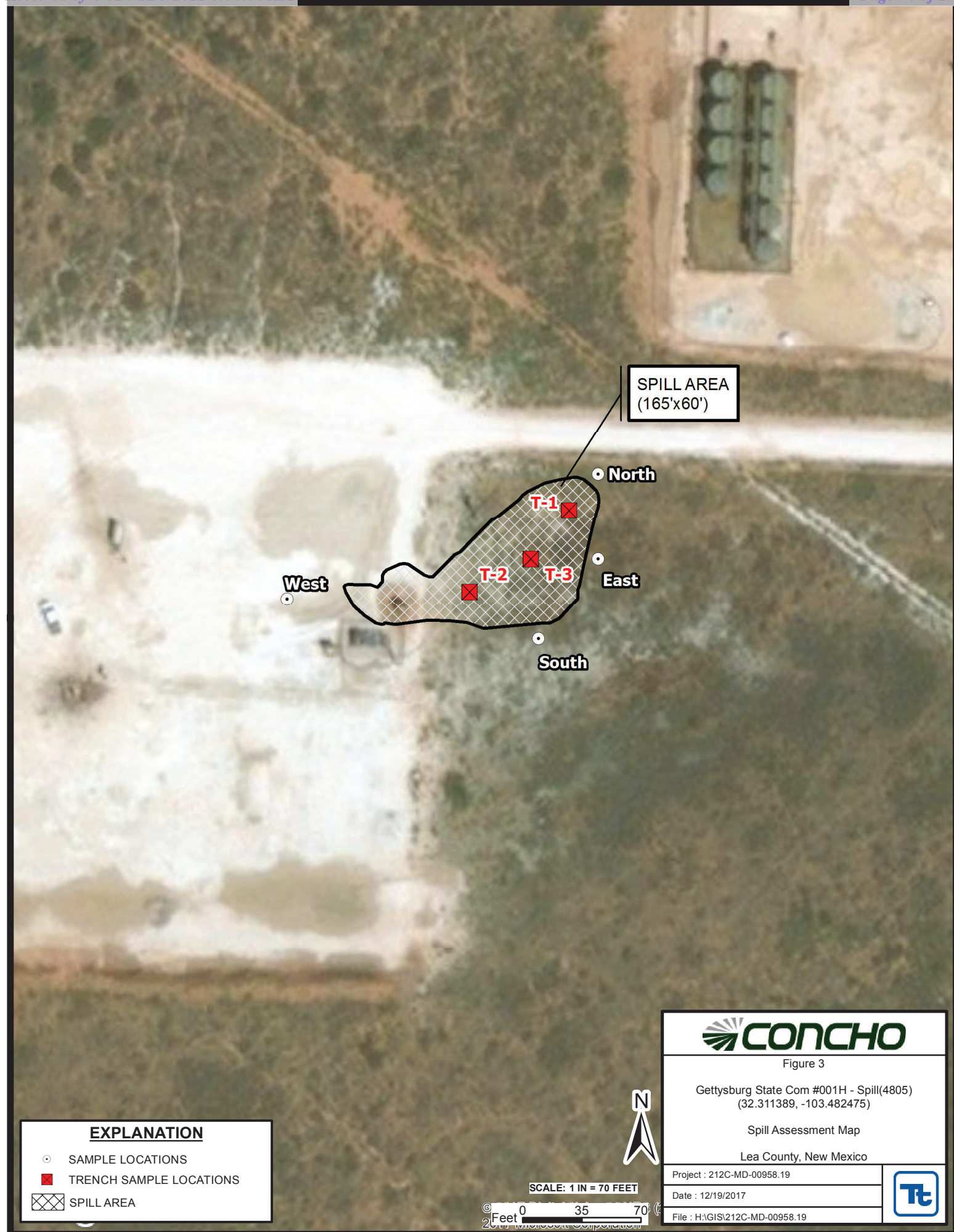
Project : 212C-MD-00958.19

Date : 09/29/2017

File : H:\GIS\212C-MD-00958.19









Tables

Table 1
COG Operating LLC.
Gettysburg State #1H
Release #2
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)					Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
			In-Situ	Removed	C6-C10	C10-C28	C28-C35	Total								
T-1	10/17/2017	Surface	X		3300	4780	64.1	8140	2.62	78.8	35.5	116	233	8.88		
	"	1.0'	X		2520	3850	80.0	6450	2.13	94.3	50.4	183	330	12.3		
	"	2.0'	X		4300	7800	502	12600	14.8	97.5	19.0	96.4	228	33.1		
	"	3.0'	X		3820	7180	316	11300	19.7	97.8	25.7	164	307	109		
	"	4.0'	X		<25.0	<25.0	<25.0	<25.0	0.00497	0.0134	0.00204	0.00978	0.0302	69.7		
	"	5.0'	X		<25.0	<25.0	<25.0	<25.0	0.0114	0.00920	<0.00199	<0.00199	0.0206	<4.96		
T-2	10/17/2017	10.0'	X		-	-	-	-	-	-	-	-	-	-	<4.96	
		Surface	X		2460	11700	325	14500	0.0379	0.0980	0.0254	0.349	0.510	5.35		
		1.0'	X		5140	11800	313	17300	0.0632	0.0629	0.00373	0.0211	0.151	<4.96		
		2.0'	X		5220	9090	323	14600	16.5	190	88.5	332	627	<4.94		
		3.0'	X		2990	4760	108	7860	8.17	84.1	24.0	103	220	5.99		
		4.0'	X		3160	4790	62.3	8010	14.3	91.9	20.7	92.6	220	<4.97		
		5.0'	X		3250	4360	92.8	7700	51.0	223	68.3	182	524	48.3		
		6.0'	X		674	1340	76.3	2090	0.960	19.6	9.09	28.2	57.9	100		
		7.0'	X		<25.0	<25.0	<25.0	<25.0	0.0165	0.0218	<0.00202	0.00682	0.0451	13.9		
		12.0'	X		-	-	-	-	-	-	-	-	-	-	42.1	
		T-3	10/17/2017	Surface	X		4010	11700	537	16200	0.833	30.0	25.4	110	166	<4.90
				1.0'	X		4230	9720	457	14400	0.737	11.4	12.5	78.2	103	<5.00
2.0'	X				4270	6300	266	10800	16.3	161	56.6	152	386	<4.94		
3.0'	X				<24.9	<24.9	<24.9	<24.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.93		
4.0'	X				<25.0	<25.0	<25.0	<25.0	0.00323	0.0158	0.00240	0.0194	0.0408	<4.93		
5.0'	X				<25.0	<25.0	<25.0	<25.0	<0.00199	0.00391	<0.00199	<0.00199	0.00391	<4.92		
North	10/17/2017	10.0'	X		-	-	-	-	-	-	-	-	-	7.34		
		Surface	X		<24.9	<24.9	<24.9	<24.9	0.0278	0.0555	0.0177	0.0961	0.197	<4.95		
South	10/17/2017	1.0'	X		<25.0	<25.0	<25.0	<25.0	0.0376	0.101	0.0147	0.0639	0.217	<4.91		
		Surface	X		<24.9	<24.9	<24.9	<24.9	<0.00351	<0.00351	<0.00351	<0.00351	<0.00351	<4.96		
East	10/17/2017	1.0'	X		<24.9	<24.9	<24.9	<24.9	0.0267	0.0424	0.0114	0.0328	0.113	<4.90		
		Surface	X		<25.0	<25.0	<25.0	<25.0	0.0401	0.219	0.0337	0.0936	0.386	<4.95		
West	10/17/2017	1.0'	X		<24.9	<24.9	<24.9	<24.9	<0.00336	<0.00336	<0.00336	<0.00336	<0.00336	<4.97		
		Surface	X		<25.0	<25.0	<25.0	<25.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	192		
		1.0'	X		<25.0	<25.0	<25.0	<25.0	0.0285	0.0275	<0.00332	<0.00332	0.0560	47.3		

(-) Not Analyzed

Proposed Excavation Depths

Appendix A

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

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: GETTYSBURG STATE COM #001H	Facility Type: Production Equipment (Well Pad)
Surface Owner: Private	Mineral Owner: State
API No. 30-025-41928	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	16	23S	34E	190	North	330	West	LEA

Latitude 32.3113899 Longitude -103.4824753

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 8 bbls	Volume Recovered: 7 bbls
Source of Release: Tank	Date and Hour of Occurrence: September 7 th , 2017 2:00 PM	Date and Hour of Discovery: September 7 th , 2017 2:00 PM
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

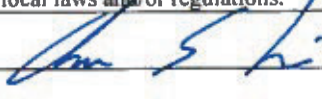
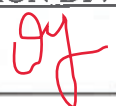
Describe Cause of Problem and Remedial Action Taken.*

The release was caused by the test meter on the test knock out malfunctioning which caused the vessel to overfill. Fluid went from the test knock out to the scrubber pots on gas compressor via the suction gas line feeding the compressor. The scrubber pot sent fluids to the day tank and fluid was released out of the thief hatch. The bad test meter will be replaced.

Describe Area Affected and Cleanup Action Taken.*

The release occurred on location and the adjacent pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Aaron Lieb	Approved by Environmental Specialist: 	
Title: Senior HSE Coordinator	Approval Date: 9/14/2017	Expiration Date:
E-mail Address: alieb@concho.com	Conditions of Approval: see attached directive	Attached ☒
Date: September 8 th , 2017 Phone: 575-748-1553		

* Attach Additional Sheets If Necessary

1RP-4805

pOY1725756297

nOY1725755233

Appendix B

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

22 South			33 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

22 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

22 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

23 South			33 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

23 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

23 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			33 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			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

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

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

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

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 03620 POD1	C	LE		1	4	3	32	23S	34E	641790	3569941	480	130	350
CP 00556 POD1	CP	LE		4	4	3	08	23S	34E	641762	3576206	497	255	242
CP 00580	CP	LE		3	4	3	23	23S	34E	646524	3572948*	220		
CP 00606	CP	LE			4	1	23	23S	34E	646613	3573854*	650	265	385
CP 00618	CP	LE		1	2	4	22	23S	34E	645713	3573539*	428	295	133
CP 00637	CP	LE		3	3	4	15	23S	34E	645293	3574541*	430	430	0
CP 00872 POD1	CP	LE		1	1	1	08	23S	34E	641225	3577504*	494	305	189
CP 01075 POD1	CP	LE			1	1	08	23S	34E	641278	3577525	430	20	410
CP 01120 POD1	CP	LE				3	14	23S	34E	646366	3574753	397	318	79
CP 01130 POD1	CP	LE		2	1	2	07	23S	34E	640662	3577558	27		
CP 01130 POD2	CP	LE		2	1	2	07	23S	34E	640674	3577549	27		
CP 01258 POD1	CP	LE		1	4	3	22	23S	34E	645015	3573221	25		
CP 01258 POD2	CP	LE		1	4	3	22	23S	34E	644941	3572883	65		
CP 01258 POD3	CP	LE		1	4	3	22	23S	34E	644938	3573097	25		

Average Depth to Water: **252 feet**

Minimum Depth: **20 feet**

Maximum Depth: **430 feet**

Record Count: 14

PLSS Search:

Township: 23S **Range:** 34E

*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 11:30 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C

Analytical Report 566209

for
COG Operating, LLC

Project Manager: Sheldon Hitchcock

Gettysburg St. Com #1H

30-OCT-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):

Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)

Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)

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

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



30-OCT-17

Project Manager: **Sheldon Hitchcock**
COG Operating, LLC
600 W Illinois
Midland, TX 79701

Reference: XENCO Report No(s): **566209**
Gettysburg St. Com #1H
Project Address: D-16-23S-34E

Sheldon Hitchcock:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 566209. 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. 566209 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 'Kelsey Brooks'.

Kelsey Brooks

Project Manager

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 566209

COG Operating, LLC, Midland, TX

Gettysburg St. Com #1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-1 Surface	S	10-17-17 09:00	0	566209-001
T-1 1'	S	10-17-17 09:02	1	566209-002
T-1 2'	S	10-17-17 09:04	2	566209-003
T-1 3'	S	10-17-17 09:06	3	566209-004
T-1 4'	S	10-17-17 09:08	4	566209-005
T-1 5'	S	10-17-17 09:10	5	566209-006
T-1 10'	S	10-17-17 09:15	10	566209-007
T-2 Surface	S	10-17-17 09:20	0	566209-008
T-2 1'	S	10-17-17 09:22	1	566209-009
T-2 2'	S	10-17-17 09:24	2	566209-010
T-2 3'	S	10-17-17 09:26	3	566209-011
T-2 4'	S	10-17-17 09:28	4	566209-012
T-2 5'	S	10-17-17 09:30	5	566209-013
T-2 6'	S	10-17-17 09:32	6	566209-014
T-2 7'	S	10-17-17 09:34	7	566209-015
T-2 12'	S	10-17-17 09:40	12	566209-016
T-3 Surface	S	10-17-17 10:00	0	566209-017
T-3 1'	S	10-17-17 10:02	1	566209-018
T-3 2'	S	10-17-17 10:04	2	566209-019
T-3 3'	S	10-17-17 10:06	3	566209-020
T-3 4'	S	10-17-17 10:08	4	566209-021
T-3 5'	S	10-17-17 10:10	5	566209-022
T-3 10'	S	10-17-17 10:20	10	566209-023



CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: Gettysburg St. Com #1H

Project ID:

Work Order Number(s): 566209

Report Date: 30-OCT-17

Date Received: 10/19/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3031638 BTEX by EPA 8021B

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

Batch: LBA-3031655 BTEX by EPA 8021B

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

Batch: LBA-3031663 BTEX by EPA 8021B

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

Batch: LBA-3031730 BTEX by EPA 8021B

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

Batch: LBA-3031744 BTEX by EPA 8021B

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



Certificate of Analysis Summary 566209

COG Operating, LLC, Midland, TX
Project Name: Gettysburg St. Com #1H

Received by OCD: 12/5/2022 8:54:56 AM

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Project Id: Sheldon Hitchcock
Contact: D-16-23S-34E
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	566209-001	566209-002	566209-003	566209-004	566209-005	566209-006
	Field Id:	T-1 Surface	T-1 1'	T-1 2'	T-1 3'	T-1 4'	T-1 5'
	Depth:	0-	1-	2-	3-	4-	5-
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Oct-17-17 09:00	Oct-17-17 09:02	Oct-17-17 09:04	Oct-17-17 09:06	Oct-17-17 09:08	Oct-17-17 09:10
BTEX by EPA 8021B	Extracted:	Oct-25-17 08:45	Oct-26-17 11:00	Oct-26-17 10:30	Oct-26-17 11:00	Oct-26-17 11:00	Oct-27-17 10:00
	Analyzed:	Oct-25-17 13:45	Oct-26-17 17:50	Oct-26-17 18:45	Oct-26-17 18:09	Oct-26-17 21:18	Oct-27-17 16:42
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
		2.62 0.199	2.13 0.497	14.8 0.994	19.7 0.495	0.00497 0.00201	0.0114 0.00199
		78.8 D 0.399	94.3 0.497	97.5 0.994	97.8 0.495	0.0134 0.00201	0.00920 0.00199
Chloride by EPA 300	Extracted:	Oct-24-17 12:00	Oct-24-17 12:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00
	Analyzed:	Oct-25-17 01:37	Oct-25-17 01:44	Oct-25-17 03:46	Oct-25-17 04:06	Oct-25-17 04:13	Oct-25-17 04:20
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
		8.88 4.92	12.3 4.95	33.1 4.94	109 4.92	69.7 4.92	<4.96 4.96
		Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00
TPH by Texas1005	Extracted:	Oct-26-17 11:13	Oct-26-17 11:33	Oct-27-17 08:31	Oct-27-17 08:50	Oct-26-17 12:32	Oct-26-17 13:32
	Analyzed:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Units/RL:	3300 24.9	2520 24.9	4300 125	3820 125	<25.0 25.0	<25.0 25.0
		4780 24.9	3850 24.9	7800 125	7180 125	<25.0 25.0	<25.0 25.0
		64.1 24.9	80.0 24.9	502 125	316 125	<25.0 25.0	<25.0 25.0
Total TPH		8140 24.9	6450 24.9	12600 125	11300 125	<25.0 25.0	<25.0 25.0

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

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

Version: 1.9%

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 566209

COG Operating, LLC, Midland, TX
Project Name: Gettysburg St. Com #1H

Received by OCD: 12/5/2022 8:54:56 AM

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Project Id: Sheldon Hitchcock
Contact: D-16-23S-34E
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	566209-007	566209-008	566209-009	566209-010	566209-011	566209-012
	Field Id:	T-1 10'	T-2 Surface	T-2 1'	T-2 2'	T-2 3'	T-2 4'
	Depth:	10-	0-	1-	2-	3-	4-
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Oct-17-17 09:15	Oct-17-17 09:20	Oct-17-17 09:22	Oct-17-17 09:24	Oct-17-17 09:26	Oct-17-17 09:28
BTEX by EPA 8021B	Extracted:		Oct-25-17 08:45	Oct-25-17 08:45	Oct-26-17 11:00	Oct-26-17 11:00	Oct-26-17 11:00
	Analyzed:		Oct-25-17 15:54	Oct-25-17 16:21	Oct-26-17 16:28	Oct-26-17 17:31	Oct-26-17 17:12
	Units/RL:		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Benzene		0.0379 0.00199	0.0632 0.00200	16.5 1.01	8.17 0.497	14.3 0.499
	Toluene		0.0980 0.00199	0.0629 0.00200	190 1.01	84.1 0.497	91.9 0.499
	Ethylbenzene		0.0254 0.00199	0.00373 0.00200	88.5 1.01	24.0 0.497	20.7 0.499
	m,p-Xylenes		0.165 0.00398	0.0140 0.00399	244 2.01	75.9 0.994	68.5 0.998
Chloride by EPA 300	o-Xylene		0.184 0.00199	0.00710 0.00200	87.6 1.01	27.4 0.497	24.1 0.499
	Total Xylenes		0.349 0.00199	0.0211 0.00200	332 1.01	103 0.497	92.6 0.499
	Total BTEX		0.510 0.00199	0.151 0.00200	627 1.01	220 0.497	220 0.499
	Extracted:	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00
	Analyzed:	Oct-25-17 04:27	Oct-25-17 05:07	Oct-25-17 05:14	Oct-25-17 05:21	Oct-25-17 05:41	Oct-25-17 05:48
TPH by Texas1005	Units/RL:	<4.96 4.96	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Chloride		5.35 4.96	<4.96 4.96	<4.94 4.94	5.99 4.92	<4.97 4.97
	Extracted:		Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00
	Analyzed:		Oct-27-17 09:10	Oct-27-17 09:30	Oct-27-17 09:50	Oct-26-17 14:53	Oct-26-17 15:53
	Units/RL:		mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Range Hydrocarbons			2460 125	5140 125	5220 125	2990 24.9	3160 24.9
C12-C28 Range Hydrocarbons			11700 125	11800 125	9090 125	4760 24.9	4790 24.9
C28-C35 Range Hydrocarbons			325 125	313 125	323 125	108 24.9	62.3 24.9
Total TPH			14500 125	17300 125	14600 125	7860 24.9	8010 24.9

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 566209

COG Operating, LLC, Midland, TX
Project Name: Gettysburg St. Com #1H

Received by OCD: 12/5/2022 8:54:56 AM

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Project Id: Sheldon Hitchcock
Contact: D-16-23S-34E
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested		Lab Id:	566209-013	566209-014	566209-015	566209-016	566209-017	566209-018
		Field Id:	T-2 5'	T-2 6'	T-2 7'	T-2 12'	T-3 Surface	T-3 1'
		Depth:	5-	6-	7-	12-	0-	1-
		Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sampled:	Oct-17-17 09:30	Oct-17-17 09:32	Oct-17-17 09:34	Oct-17-17 09:40	Oct-17-17 10:00	Oct-17-17 10:02
BTEX by EPA 8021B		Extracted:	Oct-26-17 11:00	Oct-25-17 08:45	Oct-25-17 08:45	Oct-26-17 16:00	Oct-26-17 16:00	Oct-26-17 16:00
		Analyzed:	Oct-26-17 16:10	Oct-25-17 17:58	Oct-25-17 16:40	Oct-25-17 06:29	Oct-27-17 04:12	Oct-27-17 03:53
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene			51.0 2.01	0.960 0.100	0.0165 0.00202		0.833 0.200	0.737 0.201
Toluene			223 2.01	19.6 0.100	0.0218 0.00202		30.0 0.200	11.4 0.201
Ethylbenzene			68.3 2.01	9.09 0.100	<0.00202 0.00202		25.4 0.200	12.5 0.201
m,p-Xylenes			136 4.02	20.8 0.201	0.00455 0.00404		78.0 0.399	55.0 0.402
o-Xylene			46.0 2.01	7.40 0.100	0.00227 0.00202		32.1 0.200	23.2 0.201
Total Xylenes			182 2.01	28.2 0.100	0.00682 0.00202		110 0.200	78.2 0.201
Total BTEX			524 2.01	57.9 0.100	0.0451 0.00202		166 0.200	103 0.201
Chloride by EPA 300		Extracted:	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-27-17 12:30	Oct-27-17 12:30
		Analyzed:	Oct-25-17 06:08	Oct-25-17 06:15	Oct-25-17 06:22	Oct-25-17 06:29	Oct-27-17 15:34	Oct-27-17 15:53
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride			48.3 4.95	100 4.97	13.9 4.94	42.1 4.99	<4.90 4.90	<5.00 5.00
TPH by Texas1005		Extracted:	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00
		Analyzed:	Oct-26-17 16:13	Oct-26-17 16:52	Oct-26-17 17:12	Oct-26-17 17:32	Oct-26-17 17:32	Oct-26-17 17:52
		Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C12 Range Hydrocarbons			3250 24.9	674 24.9	<25.0 25.0		4010 125	4230 125
C12-C28 Range Hydrocarbons			4360 24.9	1340 24.9	<25.0 25.0		11700 125	9720 125
C28-C35 Range Hydrocarbons			92.8 24.9	76.3 24.9	<25.0 25.0		537 125	457 125
Total TPH			7700 24.9	2090 24.9	<25.0 25.0		16200 125	14400 125

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 566209

COG Operating, LLC, Midland, TX
Project Name: Gettysburg St. Com #1H

Received by OCD: 12/5/2022 8:54:56 AM

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Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Project Id: Sheldon Hitchcock
Contact: D-16-23S-34E
Project Location:

<i>Analysis Requested</i>		<i>Lab Id:</i>	566209-019	566209-020	566209-021	566209-022	566209-023
BTEX by EPA 8021B		<i>Field Id:</i>	T-3 2'	T-3 3'	T-3 4'	T-3 5'	T-3 10'
		<i>Depth:</i>	2-	3-	4-	5-	10-
		<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL
		<i>Sampled:</i>	Oct-17-17 10:04	Oct-17-17 10:06	Oct-17-17 10:08	Oct-17-17 10:10	Oct-17-17 10:20
		<i>Extracted:</i>	Oct-27-17 10:00	Oct-26-17 16:00	Oct-25-17 08:45	Oct-25-17 08:45	
		<i>Analyzed:</i>	Oct-27-17 18:41	Oct-27-17 02:19	Oct-25-17 17:02	Oct-25-17 17:20	
		<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene			16.3 2.01	<0.00199 0.00199	0.00323 0.00201	<0.00199 0.00199	
Toluene			161 2.01	<0.00199 0.00199	0.0158 0.00201	0.00391 0.00199	
Ethylbenzene			56.6 2.01	<0.00199 0.00199	0.00240 0.00201	<0.00199 0.00199	
m,p-Xylenes			111 4.02	<0.00398 0.00398	0.0129 0.00402	<0.00398 0.00398	
o-Xylene			41.1 2.01	<0.00199 0.00199	0.00651 0.00201	<0.00199 0.00199	
Total Xylenes			152 2.01	<0.00199 0.00199	0.0194 0.00201	<0.00199 0.00199	
Total BTEX			386 2.01	<0.00199 0.00199	0.0408 0.00201	0.00391 0.00199	
Chloride by EPA 300		<i>Extracted:</i>	Oct-27-17 12:30	Oct-27-17 12:30	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00
		<i>Analyzed:</i>	Oct-27-17 15:59	Oct-27-17 16:06	Oct-25-17 06:35	Oct-25-17 06:42	Oct-25-17 06:49
		<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride			<4.94 4.94	<4.93 4.93	<4.93 4.93	<4.92 4.92	7.34 4.96
TPH by Texas1005		<i>Extracted:</i>	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	Oct-26-17 08:00	
		<i>Analyzed:</i>	Oct-27-17 10:10	Oct-26-17 18:31	Oct-26-17 18:50	Oct-26-17 19:10	
		<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
C6-C12 Range Hydrocarbons			4270 125	<24.9 24.9	<25.0 25.0	<25.0 25.0	
C12-C28 Range Hydrocarbons			6300 125	<24.9 24.9	<25.0 25.0	<25.0 25.0	
C28-C35 Range Hydrocarbons			266 125	<24.9 24.9	<25.0 25.0	<25.0 25.0	
Total TPH			10800 125	<24.9 24.9	<25.0 25.0	<25.0 25.0	

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Kelsey Brooks

Kelsey Brooks
Project Manager



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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(602) 437-0330	



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031730

Sample: 566209-001 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 13:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0350	0.0300	117	80-120	

Lab Batch #: 3031730

Sample: 566209-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 15:54

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0299	0.0300	100	80-120	

Lab Batch #: 3031730

Sample: 566209-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 16:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 3031730

Sample: 566209-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 16:40

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0358	0.0300	119	80-120	
4-Bromofluorobenzene	0.0347	0.0300	116	80-120	

Lab Batch #: 3031730

Sample: 566209-021 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 17:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0326	0.0300	109	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031730

Sample: 566209-022 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 17:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0345	0.0300	115	80-120	
4-Bromofluorobenzene	0.0352	0.0300	117	80-120	

Lab Batch #: 3031730

Sample: 566209-001 / DL

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 17:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0250	0.0300	83	80-120	
4-Bromofluorobenzene	0.0245	0.0300	82	80-120	

Lab Batch #: 3031730

Sample: 566209-014 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 17:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0337	0.0300	112	80-120	
4-Bromofluorobenzene	0.0343	0.0300	114	80-120	

Lab Batch #: 3031675

Sample: 566209-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 11:13

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	38.0	49.9	76	70-130	
1-Chlorooctane	110	99.7	110	70-130	

Lab Batch #: 3031675

Sample: 566209-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 11:33

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	61.0	49.9	122	70-130	
1-Chlorooctane	108	99.7	108	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031675

Sample: 566209-005 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 12:32

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.6	49.9	107	70-130	
1-Chlorooctane	95.7	99.8	96	70-130	

Lab Batch #: 3031675

Sample: 566209-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 13:32

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	54.3	50.0	109	70-130	
1-Chlorooctane	97.2	99.9	97	70-130	

Lab Batch #: 3031675

Sample: 566209-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 14:53

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	39.5	49.8	79	70-130	
1-Chlorooctane	116	99.6	116	70-130	

Lab Batch #: 3031675

Sample: 566209-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 15:53

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	39.3	49.8	79	70-130	
1-Chlorooctane	111	99.6	111	70-130	

Lab Batch #: 3031655

Sample: 566209-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 16:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0265	0.0300	88	80-120	
4-Bromofluorobenzene	0.0279	0.0300	93	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031675

Sample: 566209-013 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 16:13

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	36.9	49.9	74	70-130	
1-Chlorooctane	110	99.7	110	70-130	

Lab Batch #: 3031655

Sample: 566209-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 16:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0248	0.0300	83	80-120	
4-Bromofluorobenzene	0.0261	0.0300	87	80-120	

Lab Batch #: 3031675

Sample: 566209-014 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 16:52

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	63.5	49.8	128	70-130	
1-Chlorooctane	109	99.6	109	70-130	

Lab Batch #: 3031655

Sample: 566209-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 17:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 3031675

Sample: 566209-015 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 17:12

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.6	49.9	107	70-130	
1-Chlorooctane	95.7	99.8	96	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031655

Sample: 566209-011 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 17:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0253	0.0300	84	80-120	
4-Bromofluorobenzene	0.0336	0.0300	112	80-120	

Lab Batch #: 3031675

Sample: 566209-017 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 17:32

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	63.0	49.9	126	70-130	
1-Chlorooctane	124	99.8	124	70-130	

Lab Batch #: 3031655

Sample: 566209-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 17:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0271	0.0300	90	80-120	

Lab Batch #: 3031675

Sample: 566209-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 17:52

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	62.0	50.0	124	70-130	
1-Chlorooctane	124	100	124	70-130	

Lab Batch #: 3031655

Sample: 566209-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 18:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0246	0.0300	82	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031675

Sample: 566209-020 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 18:31

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.8	49.9	104	70-130	
1-Chlorooctane	93.2	99.7	93	70-130	

Lab Batch #: 3031638

Sample: 566209-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 18:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0276	0.0300	92	80-120	

Lab Batch #: 3031675

Sample: 566209-021 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 18:50

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	52.2	50.0	104	70-130	
1-Chlorooctane	95.1	99.9	95	70-130	

Lab Batch #: 3031675

Sample: 566209-022 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 19:10

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	52.9	50.0	106	70-130	
1-Chlorooctane	95.9	99.9	96	70-130	

Lab Batch #: 3031655

Sample: 566209-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 21:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0249	0.0300	83	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031663

Sample: 566209-020 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 02:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0261	0.0300	87	80-120	
4-Bromofluorobenzene	0.0270	0.0300	90	80-120	

Lab Batch #: 3031663

Sample: 566209-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 03:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0251	0.0300	84	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 3031663

Sample: 566209-017 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 04:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0258	0.0300	86	80-120	
4-Bromofluorobenzene	0.0326	0.0300	109	80-120	

Lab Batch #: 3031675

Sample: 566209-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 08:31

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.6	49.8	108	70-130	
1-Chlorooctane	119	99.6	119	70-130	

Lab Batch #: 3031675

Sample: 566209-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 08:50

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	45.6	50.0	91	70-130	
1-Chlorooctane	94.0	99.9	94	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031675

Sample: 566209-008 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 09:10

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	62.2	49.9	125	70-130	
1-Chlorooctane	108	99.7	108	70-130	

Lab Batch #: 3031675

Sample: 566209-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 09:30

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	64.4	49.9	129	70-130	
1-Chlorooctane	124	99.7	124	70-130	

Lab Batch #: 3031675

Sample: 566209-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 09:50

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	57.2	50.0	114	70-130	
1-Chlorooctane	123	99.9	123	70-130	

Lab Batch #: 3031675

Sample: 566209-019 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 10:10

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	43.5	49.9	87	70-130	
1-Chlorooctane	118	99.7	118	70-130	

Lab Batch #: 3031744

Sample: 566209-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 16:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0264	0.0300	88	80-120	
4-Bromofluorobenzene	0.0314	0.0300	105	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031744

Sample: 566209-019 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 18:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0296	0.0300	99	80-120	

Lab Batch #: 3031730

Sample: 7633242-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 10:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	80-120	

Lab Batch #: 3031675

Sample: 7633284-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 10:13

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	55.2	50.0	110	70-130	
1-Chlorooctane	98.4	100	98	70-130	

Lab Batch #: 3031638

Sample: 7633352-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 11:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0346	0.0300	115	80-120	

Lab Batch #: 3031655

Sample: 7633345-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 15:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031663

Sample: 7633348-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/27/17 01:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 3031744

Sample: 7633415-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/27/17 13:32

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0246	0.0300	82	80-120	

Lab Batch #: 3031730

Sample: 7633242-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 08:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0345	0.0300	115	80-120	

Lab Batch #: 3031638

Sample: 7633352-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 09:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0351	0.0300	117	80-120	

Lab Batch #: 3031675

Sample: 7633284-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 10:33

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	57.3	50.0	115	70-130	
1-Chlorooctane	104	100	104	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031655

Sample: 7633345-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 13:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

Lab Batch #: 3031663

Sample: 7633348-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 23:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0334	0.0300	111	80-120	

Lab Batch #: 3031744

Sample: 7633415-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/27/17 11:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0331	0.0300	110	80-120	

Lab Batch #: 3031730

Sample: 7633242-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 08:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0337	0.0300	112	80-120	

Lab Batch #: 3031638

Sample: 7633352-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 10:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0354	0.0300	118	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031675

Sample: 7633284-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 10:54

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	59.7	50.0	119	70-130	
1-Chlorooctane	113	100	113	70-130	

Lab Batch #: 3031655

Sample: 7633345-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 13:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 3031663

Sample: 7633348-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/27/17 00:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 3031744

Sample: 7633415-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/27/17 11:57

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0305	0.0300	102	80-120	

Lab Batch #: 3031730

Sample: 566207-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 09:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0325	0.0300	108	80-120	
4-Bromofluorobenzene	0.0346	0.0300	115	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031638

Sample: 566321-001 S / MS

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 10:19

SURROGATE RECOVERY STUDY

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

Lab Batch #: 3031675

Sample: 566209-005 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 12:52

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	59.0	50.0	118	70-130	
1-Chlorooctane	110	100	110	70-130	

Lab Batch #: 3031655

Sample: 566321-002 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 13:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Lab Batch #: 3031663

Sample: 566216-016 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 00:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0309	0.0300	103	80-120	

Lab Batch #: 3031744

Sample: 566341-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 12:16

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0277	0.0300	92	80-120	
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Lab Batch #: 3031730

Sample: 566207-002 SD / MSD

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 09:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0344	0.0300	115	80-120	

Lab Batch #: 3031638

Sample: 566321-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 10:37

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0336	0.0300	112	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

Lab Batch #: 3031675

Sample: 566209-005 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 13:12

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	57.5	50.0	115	70-130	
1-Chlorooctane	111	99.9	111	70-130	

Lab Batch #: 3031655

Sample: 566321-002 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 14:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0337	0.0300	112	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	80-120	

Lab Batch #: 3031663

Sample: 566216-016 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 00:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0282	0.0300	94	80-120	
4-Bromofluorobenzene	0.0313	0.0300	104	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031744

Sample: 566341-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/27/17 12:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0251	0.0300	84	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Work Order #: 566209

Analyst: ALJ

Lab Batch ID: 3031730

Units: mg/kg

Sample: 7633242-1-BKS

Batch #: 1

Date Prepared: 10/25/2017

Project ID:

Date Analyzed: 10/25/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00200	0.0998	0.0831	83	0.100	0.0805	81	3	70-130	35	
Toluene		<0.00200	0.0998	0.0985	99	0.100	0.0928	93	6	70-130	35	
Ethylbenzene		<0.00200	0.0998	0.103	103	0.100	0.0978	98	5	71-129	35	
m,p-Xylenes		<0.00399	0.200	0.204	102	0.201	0.192	96	6	70-135	35	
o-Xylene		<0.00200	0.0998	0.100	100	0.100	0.0948	95	5	71-133	35	

Date Prepared: 10/26/2017

Date Analyzed: 10/26/2017

Analyst: ALJ

Lab Batch ID: 3031655

Sample: 7633345-1-BKS

Units: mg/kg

Batch #: 1

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00200	0.100	0.0958	96	0.0998	0.0867	87	10	70-130	35	
Toluene		<0.00200	0.100	0.101	101	0.0998	0.0908	91	11	70-130	35	
Ethylbenzene		<0.00200	0.100	0.110	110	0.0998	0.0997	100	10	71-129	35	
m,p-Xylenes		<0.00401	0.200	0.216	108	0.200	0.196	98	10	70-135	35	
o-Xylene		<0.00200	0.100	0.108	108	0.0998	0.0977	98	10	71-133	35	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes

Work Order #: 566209

Analyst: ALJ

Lab Batch ID: 3031663

Units: mg/kg

Sample: 7633348-1-BKS

Batch #: 1

Date Prepared: 10/26/2017

Project ID:

Date Analyzed: 10/26/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
BTEX by EPA 8021B											
Benzene	<0.00202	0.101	0.0901	89	0.101	0.0884	88	2	70-130	35	
Toluene	<0.00202	0.101	0.0949	94	0.101	0.0937	93	1	70-130	35	
Ethylbenzene	<0.00202	0.101	0.108	107	0.101	0.104	103	4	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.211	104	0.201	0.205	102	3	70-135	35	
o-Xylene	<0.00202	0.101	0.108	107	0.101	0.104	103	4	71-133	35	

Date Prepared: 10/26/2017

Date Analyzed: 10/26/2017

Analyst: ALJ

Lab Batch ID: 3031638

Units: mg/kg

Sample: 7633352-1-BKS

Batch #: 1

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
BTEX by EPA 8021B											
Benzene	<0.00202	0.101	0.0831	82	0.100	0.0804	80	3	70-130	35	
Toluene	<0.00202	0.101	0.0941	93	0.100	0.0894	89	5	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0997	99	0.100	0.0943	94	6	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.196	97	0.200	0.185	93	6	70-135	35	
o-Xylene	<0.00202	0.101	0.0958	95	0.100	0.0907	91	5	71-133	35	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes

Work Order #: 566209

Analyst: ALJ

Lab Batch ID: 3031744

Units: mg/kg

Sample: 7633415-1-BKS

Batch #: 1

Date Prepared: 10/27/2017

Project ID:

Date Analyzed: 10/27/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
BTEX by EPA 8021B											
Benzene	<0.00202	0.101	0.103	102	0.100	0.0897	90	14	70-130	35	
Toluene	<0.00202	0.101	0.107	106	0.100	0.0932	93	14	70-130	35	
Ethylbenzene	<0.00202	0.101	0.119	118	0.100	0.104	104	13	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.221	109	0.201	0.201	100	9	70-135	35	
o-Xylene	<0.00202	0.101	0.113	112	0.100	0.102	102	10	71-133	35	

Date Prepared: 10/24/2017

Date Analyzed: 10/24/2017

Analyst: MNV

Lab Batch ID: 3031342

Sample: 7633143-1-BKS

Units: mg/kg

Batch #: 1

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride by EPA 300											
Chloride	<5.00	250	250	100	250	249	100	0	90-110	20	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes



Work Order #: 566209

Analyst: MNV

Lab Batch ID: 3031350

Units: mg/kg

Sample: 7633147-1-BKS

Batch #: 1

Date Prepared: 10/24/2017

Project ID:

Date Analyzed: 10/25/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		<5.00	250	253	101	250	252	101	0	90-110	20	

Date Prepared: 10/27/2017

Batch #: 1

Date Analyzed: 10/27/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		<5.00	250	240	96	250	240	96	0	90-110	20	

Date Prepared: 10/26/2017

Batch #: 1

Date Analyzed: 10/26/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
C6-C12 Range Hydrocarbons		<25.0	1000	927	93	1000	927	93	0	75-125	25	
C12-C28 Range Hydrocarbons		<25.0	1000	944	94	1000	953	95	1	75-125	25	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes

Work Order #: 566209
 Lab Batch ID: 3031638
 Date Analyzed: 10/26/2017
 Reporting Units: mg/kg

Project ID:
 QC- Sample ID: 566321-001 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/26/2017 Analyst: ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00199	0.0996	0.118	118	0.0992	0.117	118	1	70-130	35	
Toluene	0.00315	0.0996	0.112	109	0.0992	0.103	101	8	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.0959	96	0.0992	0.0847	85	12	71-129	35	
m,p-Xylenes	<0.00398	0.199	0.190	95	0.198	0.167	84	13	70-135	35	
o-Xylene	<0.00199	0.0996	0.0904	91	0.0992	0.0786	79	14	71-133	35	

Lab Batch ID: 3031655
 Date Analyzed: 10/26/2017
 Reporting Units: mg/kg

QC- Sample ID: 566321-002 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/26/2017 Analyst: ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	0.00211	0.100	0.111	109	0.101	0.113	110	2	70-130	35	
Toluene	0.00542	0.100	0.0991	94	0.101	0.0928	87	7	70-130	35	
Ethylbenzene	<0.00201	0.100	0.0881	88	0.101	0.0768	76	14	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.176	88	0.202	0.152	75	15	70-135	35	
o-Xylene	<0.00201	0.100	0.0847	85	0.101	0.0753	75	12	71-133	35	

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times [(C-F)/(C+F)]$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Work Order #: 566209
 Lab Batch ID: 3031663
 Date Analyzed: 10/27/2017
 Reporting Units: mg/kg

Project ID:
 QC- Sample ID: 566216-016 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/26/2017 Analyst: ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00200	0.0998	0.119	119	0.0996	0.107	107	11	70-130	35	
Toluene		<0.00200	0.0998	0.110	110	0.0996	0.0972	98	12	70-130	35	
Ethylbenzene		<0.00200	0.0998	0.105	105	0.0996	0.0886	89	17	71-129	35	
m,p-Xylenes		<0.00399	0.200	0.212	106	0.199	0.188	94	12	70-135	35	
o-Xylene		<0.00200	0.0998	0.104	104	0.0996	0.0930	93	11	71-133	35	

Lab Batch ID: 3031730
 Date Analyzed: 10/25/2017
 Reporting Units: mg/kg

QC- Sample ID: 566207-002 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/25/2017 Analyst: ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00202	0.101	0.103	102	0.101	0.102	101	1	70-130	35	
Toluene		<0.00202	0.101	0.103	102	0.101	0.0982	97	5	70-130	35	
Ethylbenzene		<0.00202	0.101	0.0895	89	0.101	0.0841	83	6	71-129	35	
m,p-Xylenes		<0.00403	0.202	0.177	88	0.202	0.166	82	6	70-135	35	
o-Xylene		<0.00202	0.101	0.0845	84	0.101	0.0788	78	7	71-133	35	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$
 ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Work Order #: 566209
 Lab Batch ID: 3031744
 Date Analyzed: 10/27/2017
 Reporting Units: mg/kg

Project ID:
 QC- Sample ID: 566341-001 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/27/2017 Analyst: ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		0.00630	0.101	0.0589	52	0.100	0.0644	58	9	70-130	35	X
Toluene		0.0546	0.101	0.0688	14	0.100	0.0685	14	0	70-130	35	X
Ethylbenzene		0.0235	0.101	0.0584	35	0.100	0.0668	43	13	71-129	35	X
m,p-Xylenes		0.124	0.202	0.132	4	0.200	0.141	9	7	70-135	35	X
o-Xylene		0.0410	0.101	0.0641	23	0.100	0.0714	30	11	71-133	35	X

Lab Batch ID: 3031342
 Date Analyzed: 10/24/2017
 Reporting Units: mg/kg

QC- Sample ID: 566095-006 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/24/2017 Analyst: MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		58.4	247	308	101	247	310	102	1	90-110	20	

Lab Batch ID: 3031342
 Date Analyzed: 10/25/2017
 Reporting Units: mg/kg

QC- Sample ID: 566207-007 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/24/2017 Analyst: MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		93.5	247	345	102	247	344	101	0	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Work Order #: 566209
 Lab Batch ID: 3031350
 Date Analyzed: 10/25/2017
 Reporting Units: mg/kg

Project ID:

QC- Sample ID: 566209-003 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/24/2017 Analyst: MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	33.1	247	283	101	247	284	102	0	90-110	20	

Lab Batch ID: 3031350 QC- Sample ID: 566209-010 S Batch #: 1 Matrix: Soil
 Date Analyzed: 10/25/2017 Date Prepared: 10/24/2017 Analyst: MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<4.94	247	263	106	247	264	107	0	90-110	20	

Lab Batch ID: 3031683 QC- Sample ID: 566209-017 S Batch #: 1 Matrix: Soil
 Date Analyzed: 10/27/2017 Date Prepared: 10/27/2017 Analyst: MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<4.90	245	252	103	245	250	102	1	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times [(C-F)/(C+F)]$
 ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

Work Order #: 566209
 Lab Batch ID: 3031683
 Date Analyzed: 10/27/2017
 Reporting Units: mg/kg

Project ID:
 QC- Sample ID: 566422-006 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/27/2017 Analyst: MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<4.99	250	259	104	250	258	103	0	90-110	20	

Lab Batch ID: 3031675
 Date Analyzed: 10/26/2017
 Reporting Units: mg/kg

QC- Sample ID: 566209-005 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/26/2017 Analyst: ARM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
C6-C12 Range Hydrocarbons	<25.0	1000	951	95	999	938	94	1	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	938	94	999	929	93	1	75-125	25	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times [(C-F)/(C+F)]$
 ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$



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Phoenix, Arizona (480-355-0900)

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Client / Reporting Information				Project Information				Xenco Quote #				Xenco Job #				Matrix Codes			
Company Name / Branch: COG Operating, LLC				Project Name/Number: Gettysburg St. Com #11H				Xenco Quote #				Xenco Job #				Matrix Codes			
Company Address: 2407 Pecos Ave. Artesia NM 88210				Project Location: D-16-235-34E															
Email: shitchcock@concho.com Phone No: 575-703-6475 dheer2@concho.com; alleeb@concho.com; thaskell@concho.com				Invoice To: COG Operating, LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland Tx, 79701															
Project Contact: Sheldon Hitchcock				PO Number:															
Sampler's Name: Sheldon Hitchcock																			
No.		Field ID / Point of Collection		Collection		Data Deliverable Information		Analytical Information		Matrix Codes									
		Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	TPH EXTENDED	BTEX	CHLORIDES	Field Comments		
1	T-1 Scar Face	0	10/17/17	4:00	S	1								/	/	/			
2	T-1 1'	1		4:02	S	1								/	/	/			
3	T-1 2'	2		4:04	S	1								/	/	/			
4	T-1 3'	3		4:06	S	1								/	/	/			
5	T-1 4'	4		4:08	S	1								/	/	/			
6	T-1 5'	5		4:10	S	1								/	/	/			
7	T-1 10'	10		4:15	S	1								/	/	/			
8	T-2 Scar Face	0		4:20	S	1								/	/	/			
9	T-2 1'	1		4:22	S	1								/	/	/			
10	T-2 2'	2		4:24	S	1								/	/	/			
Turnaround Time (Business days)																			
☐ Same Day TAT		☐ 5 Day TAT																	
☐ Next Day EMERGENCY		☒ 7 Day TAT																	
☐ 2 Day EMERGENCY		☐ Contract TAT																	
☐ 3 Day EMERGENCY		☐ TRRP Checklist																	
TAT Starts Day received by Lab, if received by 5:00 pm																			
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																			
Relinquished by Sampler:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:			
1. Sheldon Hitchcock		10/17/17 10:00 AM		1. Sheldon Hitchcock		10/17/17 10:01 AM		2. Sheldon Hitchcock		10/17/17 11:45 AM		2. Sheldon Hitchcock		10/17/17 11:45 AM		2. Sheldon Hitchcock			
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:			
3				3				4				4				4			
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:		Date Time:		Relinquished By:			
5				5				5				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.																			

Phoenix, Arizona (480-355-0900)

CHAIN OF CUSTODY

Page 2 of 3

be enforced unless previously negotiated under a fully executed client contract.

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

Phoenix, Arizona (480-355-0900)

CHAIN OF CUSTODY
Page 3 of 3

Page 3 Of 3[illegible]

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenico, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenico 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 Xenico. A minimum charge of \$75 will be applied to each pool. Xenico's liability will be limited to the cost of samples. Any samples received by Xenico but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.



Client: COG Operating, LLC

Date/ Time Received: 10/19/2017 11:45:00 AM

Work Order #: 566209

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)?	13.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Connie Hernandez

Date: 10/23/2017

Checklist reviewed by:

Kelsey Brooks

Date: 10/23/2017

Analytical Report 566212

for
COG Operating, LLC

Project Manager: Sheldon Hitchcock
Gettysburg St Com #1H

30-OCT-17

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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

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

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



30-OCT-17

Project Manager: **Sheldon Hitchcock**
COG Operating, LLC
600 W Illinois
Midland, TX 79701

Reference: XENCO Report No(s): **566212**
Gettysburg St Com #1H
Project Address: D-16-23S-34E

Sheldon Hitchcock:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 566212. 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. 566212 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 'Kelsey Brooks'.

Kelsey Brooks

Project Manager

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

**Sample Cross Reference 566212****COG Operating, LLC, Midland, TX**

Gettysburg St Com #1H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
N. Surface	S	10-17-17 00:00	0	566212-001
N. 1'	S	10-17-17 00:00	1	566212-002
S. Surface	S	10-17-17 00:00	0	566212-003
S. 1'	S	10-17-17 00:00	1	566212-004
E. Surface	S	10-17-17 00:00	0	566212-005
E. 1'	S	10-17-17 00:00	1	566212-006
W. Surface	S	10-17-17 00:00	0	566212-007
W. 1'	S	10-17-17 00:00	1	566212-008



CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: Gettysburg St Com #1H

Project ID:

Work Order Number(s): 566212

Report Date: 30-OCT-17

Date Received: 10/19/2017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3031366 BTEX by EPA 8021B

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

Batch: LBA-3031638 BTEX by EPA 8021B

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

Batch: LBA-3031732 BTEX by EPA 8021B

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



Certificate of Analysis Summary 566212

COG Operating, LLC, Midland, TX
Project Name: Gettysburg St Com #1H

Received by OCD: 12/5/2022 8:54:56 AM

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Project Id: Sheldon Hitchcock
Contact: D-16-23S-34E
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	566212-001	566212-002	566212-003	566212-004	566212-005	566212-006
	Field Id:	N. Surface	N. 1'	S. Surface	S. 1'	E. Surface	E. 1'
	Depth:	0-	1-	0-	1-	0-	1-
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Oct-17-17 00:00	Oct-17-17 00:00	Oct-17-17 00:00	Oct-17-17 00:00	Oct-17-17 00:00	Oct-17-17 00:00
BTX by EPA 8021B	Extracted:	Oct-25-17 08:00	Oct-25-17 08:00	Oct-26-17 10:30	Oct-25-17 08:00	Oct-25-17 08:00	Oct-26-17 10:30
	Analyzed:	Oct-25-17 16:23	Oct-25-17 16:42	Oct-26-17 13:29	Oct-25-17 17:20	Oct-25-17 17:39	Oct-26-17 13:49
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
		0.0278 0.0100	0.0376 0.0100	<0.00351 0.00351	0.0267 0.0100	0.0401 0.0100	<0.00336 0.00336
		0.0555 0.0100	0.101 0.0100	<0.00351 0.00351	0.0424 0.0100	0.219 0.0100	<0.00336 0.00336
		0.0177 0.0100	0.0147 0.0100	<0.00351 0.00351	0.0114 0.0100	0.0337 0.0100	<0.00336 0.00336
Chloride by EPA 300		0.0532 0.0200	0.0417 0.0200	<0.00702 0.00702	0.0328 0.0200	0.0663 0.0200	<0.00671 0.00671
		0.0429 0.0100	0.0222 0.0100	<0.00351 0.00351	<0.0100 0.0100	0.0273 0.0100	<0.00336 0.00336
		0.0961 0.0100	0.0639 0.0100	<0.00351 0.00351	0.0328 0.0100	0.0936 0.0100	<0.00336 0.00336
		0.197 0.0100	0.217 0.0100	<0.00351 0.00351	0.113 0.0100	0.386 0.0100	<0.00336 0.00336
TPH by Texas1005	Extracted:	Oct-25-17 11:00	Oct-25-17 11:00	Oct-25-17 11:00	Oct-25-17 11:00	Oct-25-17 11:00	Oct-25-17 11:00
	Analyzed:	Oct-25-17 23:17	Oct-25-17 23:23	Oct-25-17 23:30	Oct-25-17 23:51	Oct-25-17 23:57	Oct-26-17 00:04
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
		<4.95 4.95	<4.91 4.91	<4.96 4.96	<4.90 4.90	<4.95 4.95	<4.97 4.97
Total TPH	Extracted:	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00	Oct-24-17 16:00
	Analyzed:	Oct-24-17 22:53	Oct-24-17 23:55	Oct-25-17 00:16	Oct-25-17 00:36	Oct-25-17 00:56	Oct-25-17 01:16
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
		<24.9 24.9	<25.0 25.0	<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9
Total TPH		<24.9 24.9	<25.0 25.0	<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9
		<24.9 24.9	<25.0 25.0	<24.9 24.9	<24.9 24.9	<25.0 25.0	<24.9 24.9

Kelsey Brooks

Kelsey Brooks
Project Manager

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

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Version: 1.9%



Certificate of Analysis Summary 566212

COG Operating, LLC, Midland, TX
Project Name: Gettysburg St Com #1H

Received by OCD: 12/5/2022 8:54:56 AM

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Project Id: Sheldon Hitchcock
Contact: D-16-23S-34E
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested		Lab Id:	566212-007	566212-008		
		Field Id:	W. Surface	W. 1'		
		Depth:	0-	1-		
		Matrix:	SOIL	SOIL		
		Sampled:	Oct-17-17 00:00	Oct-17-17 00:00		
BTX by EPA 8021B		Extracted:	Oct-25-17 10:30	Oct-26-17 10:30		
		Analyzed:	Oct-25-17 23:18	Oct-26-17 14:11		
		Units/RL:	mg/kg RL	mg/kg RL		
Benzene			<0.00202 0.00202	0.0285 0.00332		
Toluene			<0.00202 0.00202	0.0275 0.00332		
Ethylbenzene			<0.00202 0.00202	<0.00332 0.00332		
m,p-Xylenes			<0.00403 0.00403	<0.00664 0.00664		
o-Xylene			<0.00202 0.00202	<0.00332 0.00332		
Total Xylenes			<0.00202 0.00202	<0.00332 0.00332		
Total BTX			<0.00202 0.00202	0.0560 0.00332		
Chloride by EPA 300		Extracted:	Oct-25-17 11:00	Oct-25-17 11:00		
		Analyzed:	Oct-26-17 00:11	Oct-26-17 00:25		
		Units/RL:	mg/kg RL	mg/kg RL		
Chloride			192 4.98	47.3 4.98		
TPH by Texas1005		Extracted:	Oct-24-17 16:00	Oct-24-17 16:00		
		Analyzed:	Oct-25-17 01:37	Oct-25-17 01:57		
		Units/RL:	mg/kg RL	mg/kg RL		
C6-C12 Range Hydrocarbons			<25.0 25.0	<25.0 25.0		
C12-C28 Range Hydrocarbons			<25.0 25.0	<25.0 25.0		
C28-C35 Range Hydrocarbons			<25.0 25.0	<25.0 25.0		
Total TPH			<25.0 25.0	<25.0 25.0		

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

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Version: 1%

Kelsey Brooks
Project Manager



Flagging Criteria



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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

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



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Lab Batch #: 3031320

Sample: 566212-001 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/24/17 22:53

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	47.1	49.9	94	70-130	
1-Chlorooctane	104	99.7	104	70-130	

Lab Batch #: 3031320

Sample: 566212-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/24/17 23:55

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	45.2	49.9	91	70-130	
1-Chlorooctane	97.4	99.8	98	70-130	

Lab Batch #: 3031320

Sample: 566212-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 00:16

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.8	49.8	98	70-130	
1-Chlorooctane	104	99.6	104	70-130	

Lab Batch #: 3031320

Sample: 566212-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 00:36

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	46.8	49.8	94	70-130	
1-Chlorooctane	98.6	99.6	99	70-130	

Lab Batch #: 3031320

Sample: 566212-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 00:56

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	45.4	50.0	91	70-130	
1-Chlorooctane	101	99.9	101	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Lab Batch #: 3031320

Sample: 566212-006 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 01:16

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.9	49.8	100	70-130	
1-Chlorooctane	110	99.6	110	70-130	

Lab Batch #: 3031320

Sample: 566212-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 01:37

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	44.1	49.9	88	70-130	
1-Chlorooctane	97.1	99.8	97	70-130	

Lab Batch #: 3031320

Sample: 566212-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 01:57

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	45.7	50.0	91	70-130	
1-Chlorooctane	96.5	99.9	97	70-130	

Lab Batch #: 3031366

Sample: 566212-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 16:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	80-120	
4-Bromofluorobenzene	0.0287	0.0300	96	80-120	

Lab Batch #: 3031366

Sample: 566212-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 16:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0262	0.0300	87	80-120	
4-Bromofluorobenzene	0.0272	0.0300	91	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031366

Sample: 566212-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 17:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0261	0.0300	87	80-120	
4-Bromofluorobenzene	0.0247	0.0300	82	80-120	

Lab Batch #: 3031366

Sample: 566212-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 17:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

Lab Batch #: 3031732

Sample: 566212-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 23:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0256	0.0300	85	80-120	
4-Bromofluorobenzene	0.0269	0.0300	90	80-120	

Lab Batch #: 3031638

Sample: 566212-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 13:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0280	0.0300	93	80-120	
4-Bromofluorobenzene	0.0338	0.0300	113	80-120	

Lab Batch #: 3031638

Sample: 566212-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 13:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	80-120	
4-Bromofluorobenzene	0.0253	0.0300	84	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Lab Batch #: 3031638

Sample: 566212-008 / SMP

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 14:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	80-120	
4-Bromofluorobenzene	0.0325	0.0300	108	80-120	

Lab Batch #: 3031320

Sample: 7633149-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/24/17 21:50

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	55.6	50.0	111	70-130	
1-Chlorooctane	119	100	119	70-130	

Lab Batch #: 3031366

Sample: 7633181-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 09:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0271	0.0300	90	80-120	

Lab Batch #: 3031732

Sample: 7633241-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 22:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 3031638

Sample: 7633352-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 11:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0346	0.0300	115	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Lab Batch #: 3031320

Sample: 7633149-1-BKS / BKS

Project ID:

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/24/17 22:11

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.9	50.0	98	70-130	
1-Chlorooctane	103	100	103	70-130	

Lab Batch #: 3031366

Sample: 7633181-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 08:05

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

Lab Batch #: 3031732

Sample: 7633241-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 21:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 3031638

Sample: 7633352-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 09:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0351	0.0300	117	80-120	

Lab Batch #: 3031320

Sample: 7633149-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/24/17 22:31

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	46.2	50.0	92	70-130	
1-Chlorooctane	101	100	101	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Lab Batch #: 3031366

Sample: 7633181-1-BSD / BSD

Project ID:

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 08:24

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0243	0.0300	81	80-120	
4-Bromofluorobenzene	0.0285	0.0300	95	80-120	

Lab Batch #: 3031732

Sample: 7633241-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/25/17 21:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0278	0.0300	93	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

Lab Batch #: 3031638

Sample: 7633352-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 10/26/17 10:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0354	0.0300	118	80-120	

Lab Batch #: 3031320

Sample: 566212-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/24/17 23:15

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.0	50.0	96	70-130	
1-Chlorooctane	102	99.9	102	70-130	

Lab Batch #: 3031366

Sample: 566207-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 08:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	80-120	
4-Bromofluorobenzene	0.0319	0.0300	106	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Lab Batch #: 3031732

Sample: 566212-007 S / MS

Project ID:

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 21:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0327	0.0300	109	80-120	

Lab Batch #: 3031638

Sample: 566321-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 10:19

SURROGATE RECOVERY STUDY

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

Lab Batch #: 3031320

Sample: 566212-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/24/17 23:35

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	47.4	49.9	95	70-130	
1-Chlorooctane	99.5	99.8	100	70-130	

Lab Batch #: 3031366

Sample: 566207-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 09:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	80-120	
4-Bromofluorobenzene	0.0327	0.0300	109	80-120	

Lab Batch #: 3031732

Sample: 566212-007 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/25/17 22:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031638

Sample: 566321-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 10/26/17 10:37

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0336	0.0300	112	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.

Work Order #: 566212

Analyst: ALJ

Lab Batch ID: 3031366

Units: mg/kg

Sample: 7633181-1-BKS

Batch #: 1

Date Prepared: 10/25/2017

Project ID:

Date Analyzed: 10/25/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
BTEX by EPA 8021B											
Benzene	<0.00201	0.101	0.121	120	0.100	0.125	125	3	70-130	35	
Toluene	<0.00201	0.101	0.115	114	0.100	0.118	118	3	70-130	35	
Ethylbenzene	<0.00201	0.101	0.115	114	0.100	0.117	117	2	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.229	114	0.200	0.232	116	1	70-135	35	
o-Xylene	<0.00201	0.101	0.110	109	0.100	0.112	112	2	71-133	35	

Date Prepared: 10/25/2017

Date Analyzed: 10/25/2017

Analyst: ALJ

Lab Batch ID: 3031732

Units: mg/kg

Sample: 7633241-1-BKS

Batch #: 1

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
BTEX by EPA 8021B											
Benzene	<0.00202	0.101	0.126	125	0.101	0.125	124	1	70-130	35	
Toluene	<0.00202	0.101	0.124	123	0.101	0.124	123	0	70-130	35	
Ethylbenzene	<0.00202	0.101	0.119	118	0.101	0.121	120	2	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.239	118	0.201	0.242	120	1	70-135	35	
o-Xylene	<0.00202	0.101	0.116	115	0.101	0.118	117	2	71-133	35	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes



Work Order #: 566212

Analyst: ALJ

Lab Batch ID: 3031638

Units: mg/kg

Sample: 7633352-1-BKS

Batch #: 1

Date Prepared: 10/26/2017

Project ID:

Date Analyzed: 10/26/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00202	0.101	0.0831	82	0.100	0.0804	80	3	70-130	35	
Toluene	<0.00202	0.101	0.0941	93	0.100	0.0894	89	5	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0997	99	0.100	0.0943	94	6	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.196	97	0.200	0.185	93	6	70-135	35	
o-Xylene	<0.00202	0.101	0.0958	95	0.100	0.0907	91	5	71-133	35	

Date Prepared: 10/25/2017

Date Analyzed: 10/25/2017

Analyst: MNV

Lab Batch ID: 3031539

Sample: 7633172-1-BKS

Units: mg/kg

Batch #: 1

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride by EPA 300	<5.00	250	248	99	250	246	98	1	90-110	20	

Relative Percent Difference RPD = $200 * [(C-F)/(C+F)]$
Blank Spike Recovery [D] = $100 * (C)/[B]$
Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes

Work Order #: 566212

Analyst: ARM

Lab Batch ID: 3031320

Units: mg/kg

Sample: 7633149-1-BKS

Date Prepared: 10/24/2017

Batch #: 1

Project ID:

Date Analyzed: 10/24/2017

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	1000	939	94	1000	925	93	2	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	1010	101	1000	1060	106	5	75-125	25	

Relative Percent Difference $RPD = 200 * [(C-F)/(C+F)]$
Blank Spike Recovery $[D] = 100 * (C)/[B]$
Blank Spike Duplicate Recovery $[G] = 100 * (F)/[E]$
All results are based on MDL and Validated for QC Purposes

Work Order #: 566212
 Lab Batch ID: 3031366
 Date Analyzed: 10/25/2017
 Reporting Units: mg/kg

Project ID:

QC- Sample ID: 566207-001 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/25/2017 Analyst: ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00202	0.101	0.102	101	0.100	0.106	106	4	70-130	35	
Toluene		<0.00202	0.101	0.0922	91	0.100	0.0958	96	4	70-130	35	
Ethylbenzene		<0.00202	0.101	0.0808	80	0.100	0.0821	82	2	71-129	35	
m,p-Xylenes		<0.00403	0.202	0.160	79	0.200	0.162	81	1	70-135	35	
o-Xylene		<0.00202	0.101	0.0784	78	0.100	0.0801	80	2	71-133	35	

Lab Batch ID: 3031638 Date Analyzed: 10/26/2017 Reporting Units: mg/kg
 QC- Sample ID: 566321-001 S Batch #: 1 Matrix: Soil
 Date Prepared: 10/26/2017 Analyst: ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00199	0.0996	0.118	118	0.0992	0.117	118	1	70-130	35	
Toluene		0.00315	0.0996	0.112	109	0.0992	0.103	101	8	70-130	35	
Ethylbenzene		<0.00199	0.0996	0.0959	96	0.0992	0.0847	85	12	71-129	35	
m,p-Xylenes		<0.00398	0.199	0.190	95	0.198	0.167	84	13	70-135	35	
o-Xylene		<0.00199	0.0996	0.0904	91	0.0992	0.0786	79	14	71-133	35	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times [(C-F)/(C+F)]$
 ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$



Work Order # : 566212
Lab Batch ID: 3031732
Date Analyzed: 10/25/2017
Reporting Units: mg/kg
Project ID:
QC- Sample ID: 566212-007 S **Batch #:** 1 **Matrix:** Soil
Date Prepared: 10/25/2017 **Analyst:** ALJ

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Benzene		<0.00199	0.0996	0.123	123	0.100	0.112	112	9	70-130	35	
Toluene		<0.00199	0.0996	0.110	110	0.100	0.0992	99	10	70-130	35	
Ethylbenzene		<0.00199	0.0996	0.104	104	0.100	0.0924	92	12	71-129	35	
m,p-Xylenes		<0.00398	0.199	0.213	107	0.200	0.189	95	12	70-135	35	
o-Xylene		<0.00199	0.0996	0.106	106	0.100	0.0953	95	11	71-133	35	

Lab Batch ID: 3031539 **QC- Sample ID:** 566212-008 S **Batch #:** 1 **Matrix:** Soil
Date Analyzed: 10/26/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		47.3	249	310	106	249	310	106	0	90-110	20	

Lab Batch ID: 3031539 **QC- Sample ID:** 566215-002 S **Batch #:** 1 **Matrix:** Soil
Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300		Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
Chloride		5.80	248	266	105	248	269	106	1	90-110	20	

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times [(C-F)/(C+F)]$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St Com #1H



Work Order #: 566212
Lab Batch ID: 3031320
Date Analyzed: 10/24/2017
Reporting Units: mg/kg

Project ID:

QC- Sample ID: 566212-001 S Batch #: 1 Matrix: Soil
Date Prepared: 10/24/2017 Analyst: ARM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	999	1040	104	998	1020	102	2	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	999	1050	105	998	1020	102	3	75-125	25	

Matrix Spike Percent Recovery $[D] = 100 * (C-A) / B$
Relative Percent Difference $RPD = 200 * |(C-F) / (C+F)|$
ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F-A) / E$



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)

Phoenix, Arizona (480-355-0900)

www.xenco.com

Xenco Quote #

Xenco Job #

566212

Client / Reporting Information		Project Information		Analytical Information		Matrix Codes									
Company Name / Branch: COG Operating, LLC Company Address: 2407 Pecos Ave. Artesia NM 88210 Email: silhtchcock@concho.com Phone No: 575-703-6475 dneel2@concho.com, alleb@concho.com, raskell@concho.com		Project Name/Number: Gettysburg St. Cor #1H Project Location: D-15-235-34E Invoice To: COG Operating, LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland Tx, 79701 PO Number:		TPH EXTENDED BTX CHLORIDES		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									
Project Contact: Sheldon Hitchcock		Sampler's Name: Sheldon Hitchcock													
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	Notes	Field Comments
1	N. Surface	6	10/17/17		S	1									
2	N. 1'	1			S	1									
3	S. Surface	6			S	1									
4	S. 1'	1			S	1									
5	E. Surface	0			S	1									
6	E. 1'	1			S	1									
7	W. Surface	0			S	1									
8	W. 1'	1			S	1									
9					S	1									
10					S	1									
Turnaround Time (Business days)														Notes:	
☐ Same Day TAT		☐ 5 Day TAT												Temp: 3.2 IR ID: R-8	
☐ Next Day EMERGENCY		☒ Day TAT												CF: (0-6: -0.2°C)	
☐ 2 Day EMERGENCY		☐ Contract TAT												(6-23: +0.2°C)	
☐ 3 Day EMERGENCY														Corrected Temp: 3	
TAT Starts Day received by Lab, if received by 5:00 pm														FEEDBACK	
Relinquished by Sampler:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:	
1 Sheldon Hitchcock		10/17/17		1 Sheldon Hitchcock		10-19-17		1 Sheldon Hitchcock		10-19-17		1 Sheldon Hitchcock		10-19-17	
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:	
3				3				4				4			
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Date Time:		Received By:	
5				5				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.



Client: COG Operating, LLC

Date/ Time Received: 10/19/2017 11:45:00 AM

Work Order #: 566212

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)?	13.2
#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)?	No
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Connie Hernandez

Date: 10/23/2017

Checklist reviewed by:

Kelsey Brooks

Date: 10/23/2017

APPENDIX VI



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

January 15, 2019

LUPE CARRASCO

MMX

2737 PECOS HWY

CARLSBAD, NM 88220

RE: GETTYSBERG STATE COM #1

Enclosed are the results of analyses for samples received by the laboratory on 01/14/19 15:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 1 (H900112-01)

BTEX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36		
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74		
Total BTEX	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 90.8 % 41-142

Surrogate: 1-Chlorooctadecane 90.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 2 (H900112-02)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	01/15/2019	ND	432	108	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 92.3 % 41-142

Surrogate: 1-Chlorooctadecane 90.8 % 37.6-147

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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 3 (H900112-03)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.0 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	149	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	18.7	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 90.9 % 41-142

Surrogate: 1-Chlorooctadecane 95.7 % 37.6-147

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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 4 (H900112-04)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 92.9 % 41-142

Surrogate: 1-Chlorooctadecane 92.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 5 (H900112-05)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	01/15/2019	ND	432	108	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 94.3 % 41-142

Surrogate: 1-Chlorooctadecane 93.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 6 (H900112-06)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36		
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74		
Total BTEx	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	1500	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	229	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 98.5 % 41-142

Surrogate: 1-Chlorooctadecane 137 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 7 (H900112-07)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36		
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74		
Total BTX	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.5 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	39.6	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	21.7	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 91.5 % 41-142

Surrogate: 1-Chlorooctadecane 93.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 8 (H900112-08)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTEX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 88.8 % 41-142

Surrogate: 1-Chlorooctadecane 89.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 9 (H900112-09)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	01/15/2019	ND	432	108	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 90.5 % 41-142

Surrogate: 1-Chlorooctadecane 91.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 10 (H900112-10)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36		
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74		
Total BTEx	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 87.0 % 41-142

Surrogate: 1-Chlorooctadecane 87.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: SW - 11 (H900112-11)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36		
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74		
Total BTEx	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 84.7 % 41-142

Surrogate: 1-Chlorooctadecane 85.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: T1 BOTTOM (H900112-12)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36		
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72		
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67		
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74		
Total BTEx	<0.300	0.300	01/15/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.7 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	91.2	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 90.0 % 41-142

Surrogate: 1-Chlorooctadecane 93.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: T2 BOTTOM (H900112-13)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTX	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	01/15/2019	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 91.8 % 41-142

Surrogate: 1-Chlorooctadecane 91.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received:	01/14/2019	Sampling Date:	01/14/2019
Reported:	01/15/2019	Sampling Type:	Soil
Project Name:	GETTYSBERG STATE COM #1	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG		

Sample ID: T3 BOTTOM (H900112-14)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/15/2019	ND	2.30	115	2.00	3.36	
Toluene*	<0.050	0.050	01/15/2019	ND	2.19	109	2.00	2.72	
Ethylbenzene*	<0.050	0.050	01/15/2019	ND	2.17	108	2.00	4.67	
Total Xylenes*	<0.150	0.150	01/15/2019	ND	6.57	109	6.00	3.74	
Total BTEx	<0.300	0.300	01/15/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	01/15/2019	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	01/15/2019	ND	185	92.6	200	1.11	
DRO >C10-C28*	<10.0	10.0	01/15/2019	ND	188	93.8	200	8.26	
EXT DRO >C28-C36	<10.0	10.0	01/15/2019	ND					

Surrogate: 1-Chlorooctane 89.1 % 41-142

Surrogate: 1-Chlorooctadecane 87.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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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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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>Cardinal Laboratories</u>		P.O. #:		BILL TO								ANALYSIS REQUEST									
Project Manager: <u>Lupe Carrasco</u>		Company: <u>COG</u>																			
Address:		Attn: <u>Sheldon H.</u>																			
City: State: Zip:		Address:																			
Phone #: Fax #:		City: State: Zip:																			
Project #: Project Owner:		City: State: Zip:																			
Project Name: <u>Gettysburg State Cor #1</u>		Phone #:																			
Project Location:		Fax #:																			
Sampler Name: <u>Lupe Carrasco</u>																					
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											
<u>H900112</u>		<u>500-1</u>																			
<u>1</u>		<u>500-2</u>																			
<u>2</u>		<u>500-3</u>																			
<u>3</u>		<u>500-4</u>																			
<u>4</u>		<u>500-5</u>																			
<u>5</u>		<u>500-6</u>																			
<u>6</u>		<u>500-7</u>																			
<u>7</u>		<u>500-8</u>																			
<u>8</u>		<u>500-9</u>																			
<u>9</u>		<u>500-10</u>																			
<u>10</u>																					

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Relinquished By: [Signature] Date: 11/14/19 Time: 3:30pm

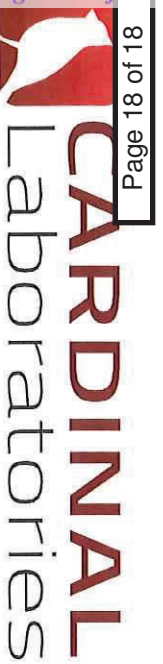
Received By: Juanita Delatorre Date: 11/14/19 Time: 3:30pm

Delivered By: (Circle One) 8.9°C #97 Sample Condition: ☒ Cool ☐ Intact ☐ Yes ☐ No ☐ Yes ☐ No

Sampler - UPS - Bus - Other: 8.9°C #97 CHECKED BY: [Signature] (Initials)

Remarks: email
Superior inc@gmail.com
St. Louis

1 of 2



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>PPM</u>		BILL TO		ANALYSIS REQUEST															
Project Manager: <u>Lupe Carrasco</u>		P.O. #:																	
Address:		Company: <u>CG</u>																	
City: State: Zip:		Attn: <u>Sheldon Hitebeck</u>																	
Phone #: Fax #:		Address:																	
Project #: Project Owner:		City: State: Zip:																	
Project Name: <u>Gettysburg State Con #1</u>		Phone #: Fax #:																	
Project Location:																			
Sampler Name: <u>Lupe Carrasco</u>																			
FOR LAB USE ONLY																			
Lab I.D. Sample I.D.	<u>A900112</u> <u>11</u> <u>SLD-11</u> <u>12</u> <u>T1 Bottom</u> <u>13</u> <u>T2 Bottom</u> <u>14</u> <u>T3 Bottom</u>	(G)RAB OR (C)OMP. # CONTAINERS	MATRIX	PRESERV.	SAMPLING	DATE	TIME												

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Relinquished By: <u>[Signature]</u>	Date: <u>11/19/19</u>	Received By: <u>[Signature]</u>	Date: <u>11/19/19</u>
Time: <u>3:55pm</u>		Time: <u>4:07</u>	

Delivered By: (Circle One) UPS 8.9c 497 50.

Sampler - UPS - Bus - Other: 8.9c 497 50.

Sample Condition: Cool ☒ Intact ☒ Yes ☐ No ☐ Yes ☐ No ☐

CHECKED BY: (Initials) [Signature]

REMARKS: Excess: Improper use of email.com

Phone Result: ☐ Yes ☐ No ☐ Add'l Phone #: [Signature]

Fax Result: ☐ Yes ☐ No ☐ Add'l Fax #: [Signature]

2042

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

January 22, 2019

LUPE CARRASCO

MMX

2737 PECOS HWY

CARLSBAD, NM 88220

RE: GETTYSBURG STATE COM #1H

Enclosed are the results of analyses for samples received by the laboratory on 01/21/19 11:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

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

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

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

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:MMX
2737 PECOS HWY
CARLSBAD NM, 88220Project: GETTYSBURG STATE COM #1H
Project Number: NONE GIVEN
Project Manager: LUPE CARRASCO
Fax To: (575) 236-6201Reported:
22-Jan-19 14:08

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
T2 WEST BOTTOM	H900192-01	Soil	21-Jan-19 00:00	21-Jan-19 11:35
T2 -T3	H900192-02	Soil	21-Jan-19 00:00	21-Jan-19 11:35
T1 - T3	H900192-03	Soil	21-Jan-19 00:00	21-Jan-19 11:35

Sample ID for H900192-03 revised from T1-T2 to T1-T3 as per Lupe 01/22/19. This is the revised report that will replace the one sent earlier 01/22/19.

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: GETTYSBURG STATE COM #1H
Project Number: NONE GIVEN
Project Manager: LUPE CARRASCO
Fax To: (575) 236-6201

Reported:
22-Jan-19 14:08

T2 WEST BOTTOM
H900192-01 (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	9012207	AC	22-Jan-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9012115	ms	22-Jan-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129 9012115 ms 22-Jan-19 8021B

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	

Surrogate: 1-Chlorooctane 90.7 % 41-142 9012114 MS 22-Jan-19 8015B

Surrogate: 1-Chlorooctadecane 89.5 % 37.6-147 9012114 MS 22-Jan-19 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:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: GETTYSBURG STATE COM #1H
Project Number: NONE GIVEN
Project Manager: LUPE CARRASCO
Fax To: (575) 236-6201

Reported:
22-Jan-19 14:08

T2 -T3
H900192-02 (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	9012207	AC	22-Jan-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9012115	ms	22-Jan-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			102 %	73.3-129		9012115	ms	22-Jan-19	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	

Surrogate: 1-Chlorooctane			97.6 %	41-142		9012114	MS	22-Jan-19	8015B	
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Surrogate: 1-Chlorooctadecane			96.4 %	37.6-147		9012114	MS	22-Jan-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: GETTYSBURG STATE COM #1H
Project Number: NONE GIVEN
Project Manager: LUPE CARRASCO
Fax To: (575) 236-6201

Reported:
22-Jan-19 14:08

T1 - T3
H900192-03 (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	9012207	AC	22-Jan-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9012115	ms	22-Jan-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9012115	ms	22-Jan-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			101 %	73.3-129		9012115	ms	22-Jan-19	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9012114	MS	22-Jan-19	8015B	

Surrogate: 1-Chlorooctane			94.5 %	41-142		9012114	MS	22-Jan-19	8015B	
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Surrogate: 1-Chlorooctadecane			92.3 %	37.6-147		9012114	MS	22-Jan-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: GETTYSBURG STATE COM #1H
Project Number: NONE GIVEN
Project Manager: LUPE CARRASCO
Fax To: (575) 236-6201

Reported:
22-Jan-19 14:08

Inorganic Compounds - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 9012207 - General Prep - Wet Chem									
Blank (9012207-BLK1)				Prepared & Analyzed: 22-Jan-19					
Chloride	ND	16.0	mg/kg						
LCS (9012207-BS1)				Prepared & Analyzed: 22-Jan-19					
Chloride	432	16.0	mg/kg	400		108	80-120		
LCS Dup (9012207-BSD1)				Prepared & Analyzed: 22-Jan-19					
Chloride	416	16.0	mg/kg	400		104	80-120	3.77	20

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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: GETTYSBURG STATE COM #1H
Project Number: NONE GIVEN
Project Manager: LUPE CARRASCO
Fax To: (575) 236-6201

Reported:
22-Jan-19 14:08

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 9012115 - Volatiles**Blank (9012115-BLK1)**

Prepared & Analyzed: 21-Jan-19

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)	0.100		mg/kg	0.100		100	73.3-129			

LCS (9012115-BS1)

Prepared & Analyzed: 21-Jan-19

Benzene	1.93	0.050	mg/kg	2.00		96.6	72.2-131			
Toluene	1.86	0.050	mg/kg	2.00		92.8	71.7-126			
Ethylbenzene	1.85	0.050	mg/kg	2.00		92.3	68.9-126			
Total Xylenes	5.61	0.150	mg/kg	6.00		93.4	71.4-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.100		mg/kg	0.100		100	73.3-129			

LCS Dup (9012115-BSD1)

Prepared & Analyzed: 21-Jan-19

Benzene	1.94	0.050	mg/kg	2.00		97.0	72.2-131	0.384	6.91	
Toluene	1.85	0.050	mg/kg	2.00		92.7	71.7-126	0.183	7.12	
Ethylbenzene	1.85	0.050	mg/kg	2.00		92.6	68.9-126	0.340	7.88	
Total Xylenes	5.63	0.150	mg/kg	6.00		93.9	71.4-125	0.489	7.46	
Surrogate: 4-Bromofluorobenzene (PID)	0.0992		mg/kg	0.100		99.2	73.3-129			

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: GETTYSBURG STATE COM #1H
Project Number: NONE GIVEN
Project Manager: LUPE CARRASCO
Fax To: (575) 236-6201

Reported:
22-Jan-19 14:08

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 9012114 - General Prep - Organics**Blank (9012114-BLK1)**

Prepared & Analyzed: 21-Jan-19

GRO C6-C10	ND	10.0	mg/kg						
DRO >C10-C28	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	49.7		mg/kg	50.0		99.3	41-142		
Surrogate: 1-Chlorooctadecane	52.1		mg/kg	50.0		104	37.6-147		

LCS (9012114-BS1)

Prepared & Analyzed: 21-Jan-19

GRO C6-C10	191	10.0	mg/kg	200		95.7	76.5-133		
DRO >C10-C28	208	10.0	mg/kg	200		104	72.9-138		
Total TPH C6-C28	399	10.0	mg/kg	400		99.8	78-132		
Surrogate: 1-Chlorooctane	50.3		mg/kg	50.0		101	41-142		
Surrogate: 1-Chlorooctadecane	50.9		mg/kg	50.0		102	37.6-147		

LCS Dup (9012114-BSD1)

Prepared & Analyzed: 21-Jan-19

GRO C6-C10	189	10.0	mg/kg	200		94.6	76.5-133	1.13	20.6
DRO >C10-C28	208	10.0	mg/kg	200		104	72.9-138	0.114	20.6
Total TPH C6-C28	397	10.0	mg/kg	400		99.3	78-132	0.482	18
Surrogate: 1-Chlorooctane	49.3		mg/kg	50.0		98.7	41-142		
Surrogate: 1-Chlorooctadecane	49.6		mg/kg	50.0		99.2	37.6-147		

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Celey D. Keene, Lab Director/Quality Manager



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

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

Cardinal Laboratories

*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

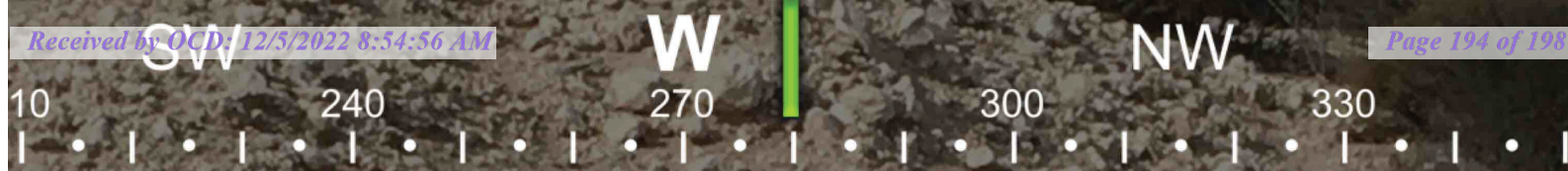
Celey D. Keene, Lab Director/Quality Manager



ANALYSIS REQUEST

[illegible]

APPENDIX VII



☉ 280°W (T) ☉ 32.820232°, -104.028732° ±96110.3ft ▲ 3609ft

COG OPERATING LLC
GETTYSBURG STATE COM #1H
UL D SEC.16-T23S-R34E
190' FNL & 330' FWL
LEA COUNTY, NM
API #30-025-41928

NW

N

NE

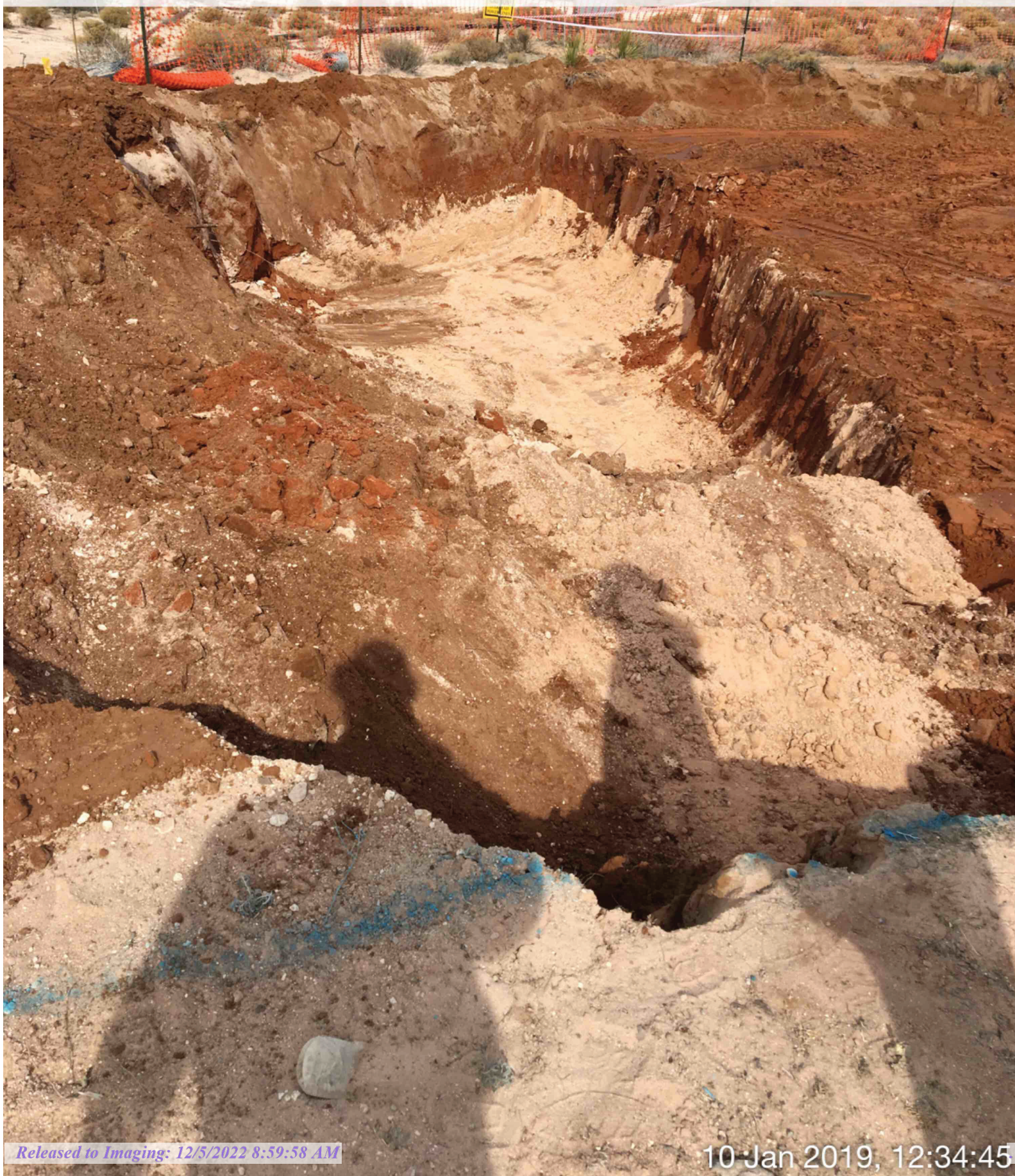
330

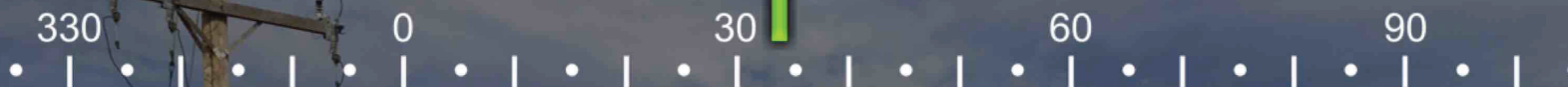
0

30

60

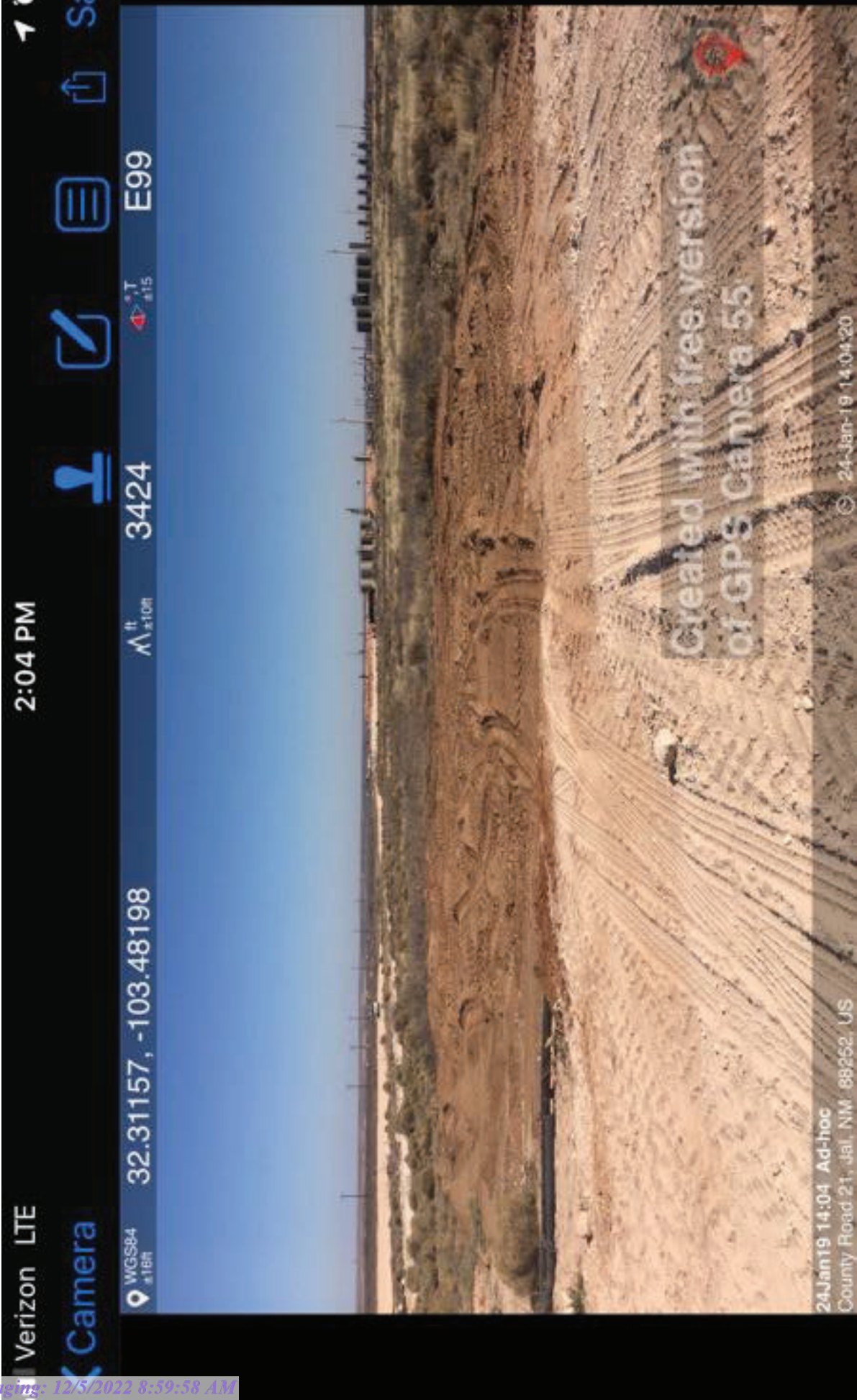
☀ 16°N (T) ● 32.820232°, -104.028732° ±96248.1ft ▲ 3609ft





☀ 34°NE (T) ● 32.311443°, -103.481865° ±16.4ft ▲ 3424ft





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 163648

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 163648
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	Site must meet 19.15.29.13 NMAC requirements at time of plugging and abandonment.	12/5/2022