[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.

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

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 Hitchcock

Sheldon L. Hitchcock
HSE Coordinator
slhitchcock@concho.com

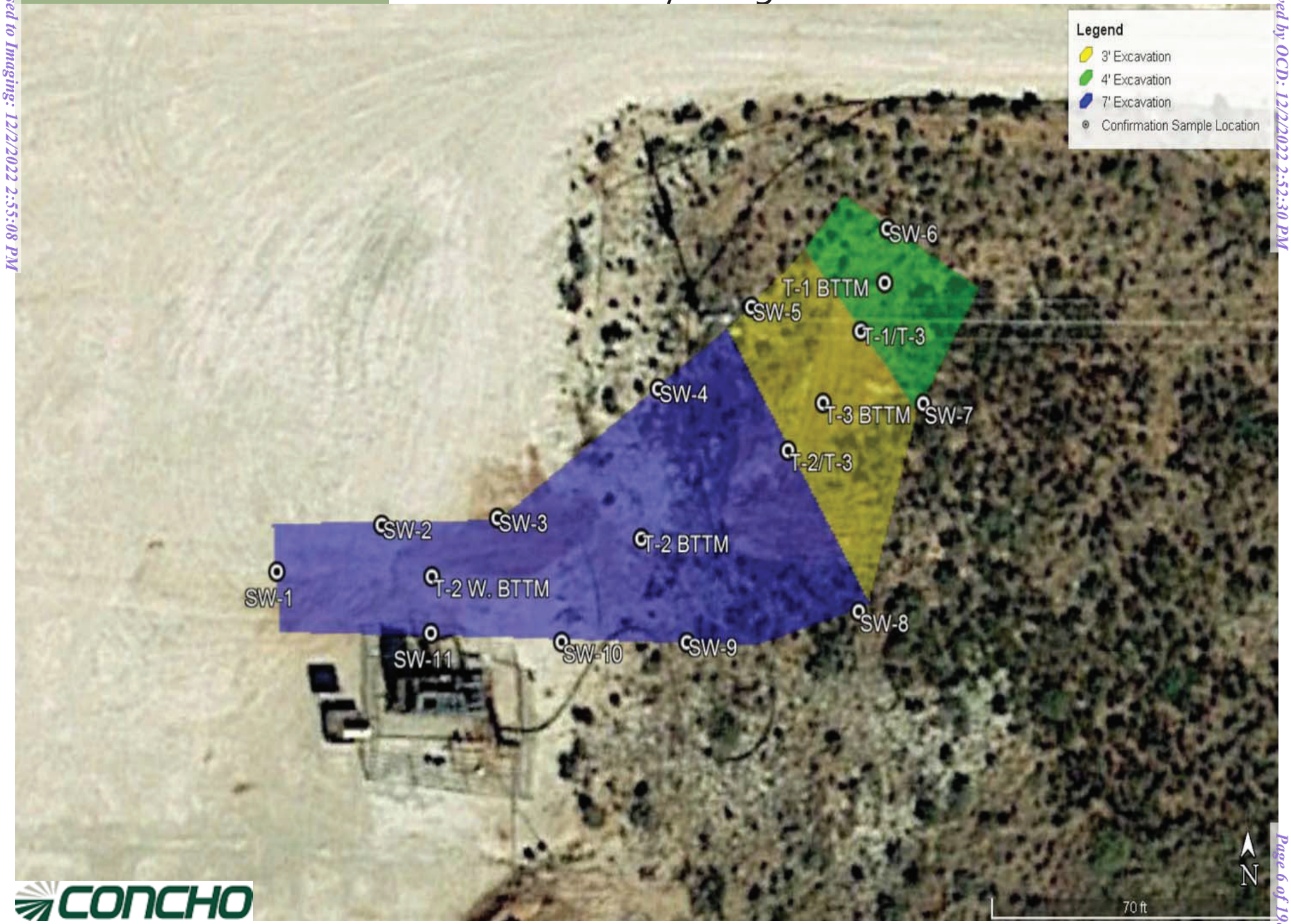
Enclosed:

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

5/13/17 & 9/7/17

Gettysburg State Com #001H



CONCHO

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-basin Code	County	Q 64	Q 16	Q 4	Sec	Twn	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

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.*

RECEIVED
By Olivia Yu at 8:06 am, May 18, 2017

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: Rebecca Haskell	OIL CONSERVATION DIVISION
Printed Name: Rebecca Haskell	Approved by Environmental Specialist: OY
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
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 Repo

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 7th, 2017 2:00 PM	Date and Hour of Discovery: September 7th, 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 8th, 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) 7	Volume Recovered (bbls) 6.5
☐ 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

State of New Mexico
Oil Conservation Division

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 not 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: Sheldon L. Hitchcock Title: HSE Coordinator

Signature: _____ Date: 3/11/2019

email: slhitchcock@concho.com Telephone: 575-746-2010

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nOY1713829831
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: Brittany Hall Date: 12/2/2022

Printed Name: Brittany Hall Title: Environmental Specialist

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	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) 8	Volume Recovered (bbls) 7
☐ 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

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

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 not 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: 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: _____

State of New Mexico
Oil Conservation Division

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: 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: _____ Date: _____

Printed Name: _____ Title: _____

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:	**32.3113899º N**			**103.4824753º 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 Tavarez
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.Tavarez@tetratech.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

TETRA TECH

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

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

December 12, 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-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 32.3113899º, W 103.4824753 º. 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.tetratech.com

TETRA TECH

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.

TETRA TECH

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 safely 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.

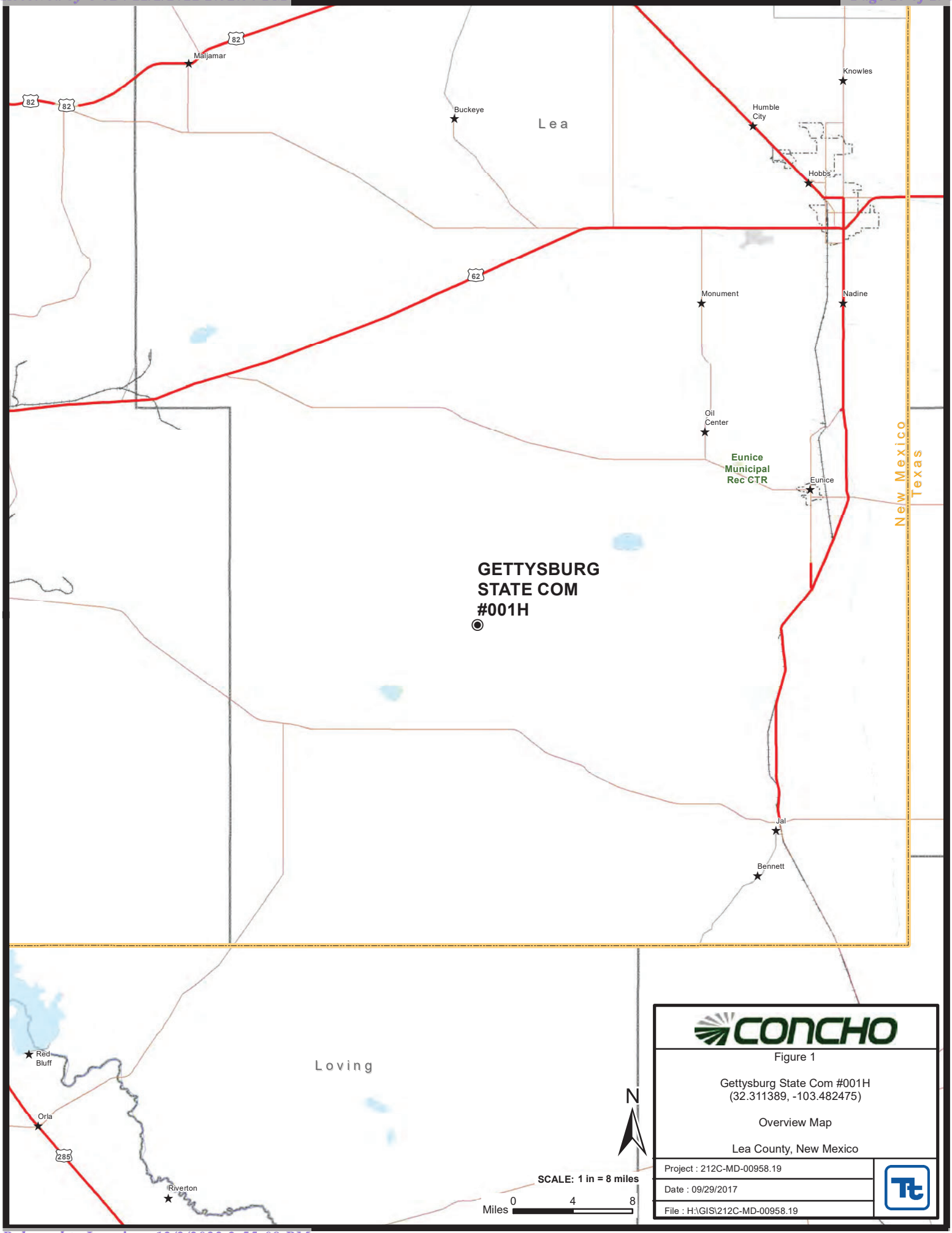
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Geologist I

Ike Tavarez,
Senior Project Manager, P.G.

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

Figures



CONCHO

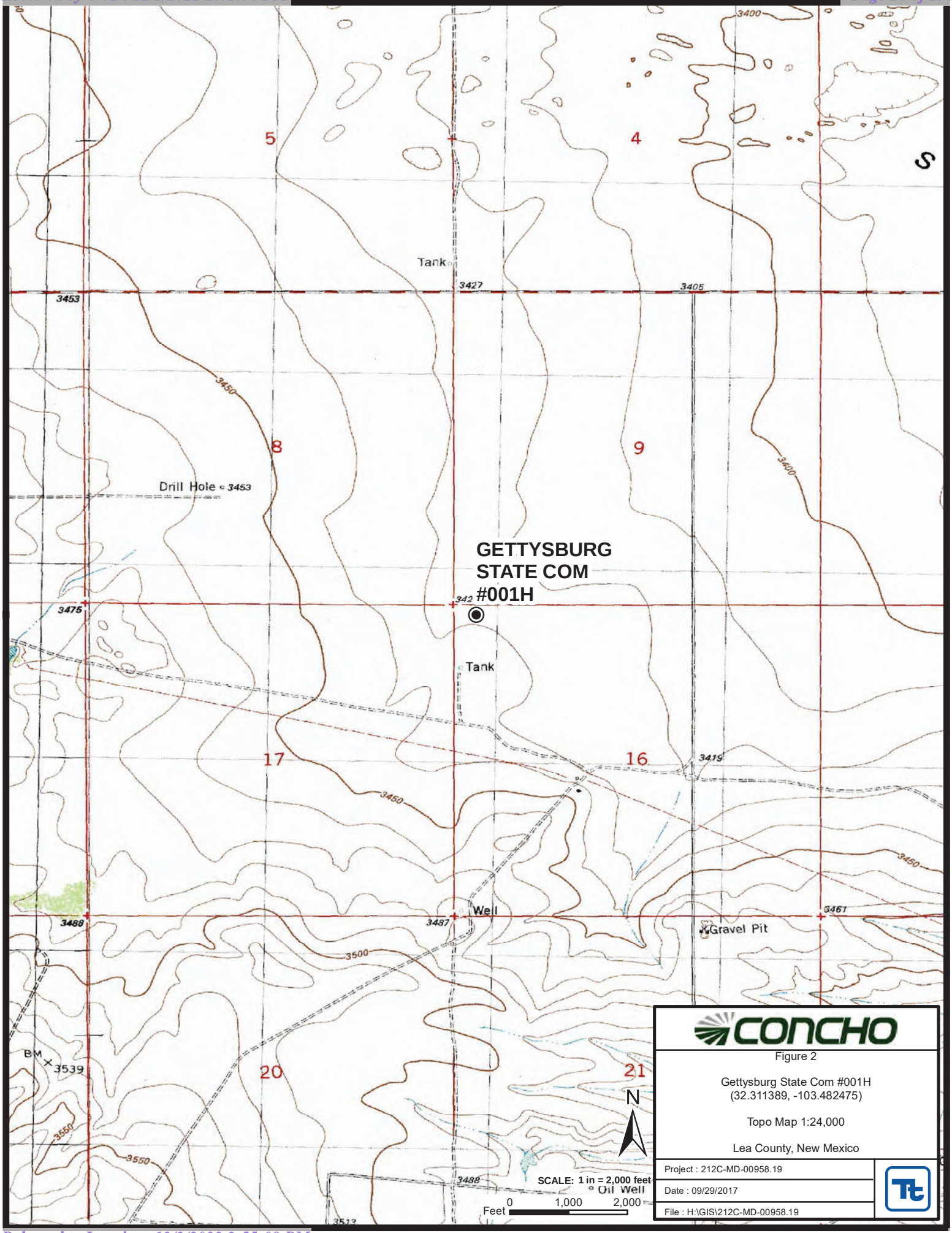
Figure 1

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	



CONCHO

Figure 2

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

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00958.19	
Date : 09/29/2017	
File : H:\GIS\212C-MD-00958.19	


SPILL AREA
(85'x25')
North
East
West
T-1
South
EXPLANATION
SAMPLE LOCATIONS
TRENCH SAMPLE LOCATIONS
SPILL AREA
N
SCALE: 1 IN = 70 FEET
Feet 0 35 70
CONCHO
Figure 3
Gettysburg State Com #001H
(32.311389, -103.482475)
Spill Assessment Map
Lea County, New Mexico
Project : 212C-MD-00958.19
Date : 09/29/2017
File : H:\GIS\212C-MD-00958.19


SPILL AREA
(85'x25')
3' DEEP
North
T-1
East
West
South
EXPLANATION
SAMPLE LOCATIONS
TRENCH SAMPLE LOCATIONS
PROPOSED EXCAVATION AREA
N
SCALE: 1 IN = 70 FEET
Feet 0 35 70
CONCHO
Figure 4
Gettysburg State Com #001H
(32.311389, -103.482475)
Proposed Excavation Area & Depth 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
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	C6-C10	C10-C28	C28-C35	Total						
T-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: Rebecca Haskell	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	13 391
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 30	12 50
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	8 225	9	10	11	12
18	17	16	15 430	14 318	13
19	20	21	22 295	23 265	24
30	29	28	27	26	25
31	32 130	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 24.6	11	12
18	17	16	15	14	13
19	20	21	22	23 208	24 16.9
30	29	28	27	26	25
31	32	33 93.2	34	35	36

24 South 34 East

6 81	5	4 475	3	2	1
7	8	9	10	11 40	12
18	17	16	15	14	13
19	20	21 431	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	10 300	11	12
18	17	16	15	14	13
19	20 97	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	Depth Well	Depth Water	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**

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: Getysburg 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:	555791-001		555791-002		555791-003		555791-004		555791-005		555791-006	
	Field Id:	North - Surf		North - 1'		South - Surf		South - 1'		East - Surf		East - 1'	
	Depth:			1 ft				1 ft				1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	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	
BTEX by EPA 8021B	***Extracted:***	Jun-26-17 11:00		Jun-26-17 16:30		Jun-26-17 16:30		Jun-26-17 16:30		Jun-26-17 16:30		Jun-26-17 16:30	
	Analyzed:	Jun-26-17 13:50		Jun-27-17 08:45		Jun-26-17 23:08		Jun-26-17 23:24		Jun-26-17 23:40		Jun-26-17 23:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Toluene		<0.00202	0.00202	0.00224	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Ethylbenzene		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
m_p-Xylenes		<0.00403	0.00403	<0.00405	0.00405	<0.00398	0.00398	<0.00400	0.00400	<0.00402	0.00402	<0.00398	0.00398
o-Xylene		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Total Xylenes		<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
Total BTEX		<0.00202	0.00202	0.00224	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199
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		Jun-27-17 12:00	
	Analyzed:	Jun-27-17 15:36		Jun-27-17 15:59		Jun-27-17 16:06		Jun-27-17 16:14		Jun-27-17 16:22		Jun-27-17 16:44	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		545	4.91	56.6	4.97	295	4.97	50.7	4.96	281	4.98	61.2	4.92
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		Jun-24-17 12:00	
	Analyzed:	Jun-24-17 16:19		Jun-24-17 17:19		Jun-24-17 17:40		Jun-24-17 18:00		Jun-24-17 18:20		Jun-24-17 18:40	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
C10-C28 Diesel Range Organics		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	328	15.0	43.1	15.0
C28-C35 Oil Range Hydrocarbons		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	81.3	15.0	<15.0	15.0
Total TPH		<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	409	15.0	43.1	15.0

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

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 555791

COG Operating LLC, Artesia, NM

Project Name: Gettysburg State #1 H

Project Id:
Contact: Aaron Lieb
Project Location: Getysburg 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:	555791-007		555791-008					
	Field Id:	West - Surf		West - 1'					
	Depth:			1 ft					
	Matrix:	SOIL		SOIL					
	Sampled:	Jun-14-17 10:30		Jun-14-17 10:30					
BTEX by EPA 8021B	***Extracted:***	Jun-26-17 16:30		Jun-26-17 16:30					
	Analyzed:	Jun-27-17 00:12		Jun-27-17 00:28					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00198	0.00198	<0.00200	0.00200				
Toluene		0.00412	0.00198	<0.00200	0.00200				
Ethylbenzene		0.00366	0.00198	<0.00200	0.00200				
m_p-Xylenes		0.0101	0.00396	<0.00401	0.00401				
o-Xylene		0.00798	0.00198	<0.00200	0.00200				
Total Xylenes		0.0181	0.00198	<0.00200	0.00200				
Total BTEX		0.0259	0.00198	<0.00200	0.00200				
Chloride by EPA 300	***Extracted:***	Jun-27-17 12:00		Jun-27-17 12:00					
	Analyzed:	Jun-27-17 16:52		Jun-27-17 17:00					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		455	4.97	25.8	4.98				
TPH By SW8015 Mod	***Extracted:***	Jun-24-17 12:00		Jun-24-17 12:00					
	Analyzed:	Jun-24-17 19:00		Jun-24-17 19:20					
	Units/RL:	mg/kg	RL	mg/kg	RL				
C6-C10 Gasoline Range Hydrocarbons		<15.0	15.0	<15.0	15.0				
C10-C28 Diesel Range Organics		22.2	15.0	<15.0	15.0				
C28-C35 Oil Range Hydrocarbons		<15.0	15.0	<15.0	15.0				
Total TPH		22.2	15.0	<15.0	15.0				

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

Kelsey Brooks
Project Manager

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: Getysburg 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,

Kelsey Brooks
Project Manager

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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-002	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

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	**56.6**	4.97	mg/kg	06.27.17 15.59		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 17.19	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-002	Date Collected:	06.14.17 10.30	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-004	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

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	**50.7**	4.96	mg/kg	06.27.17 16.14		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 18.00	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-004	Date Collected:	06.14.17 10.30	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	06.26.17 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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-006	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

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	**61.2**	4.92	mg/kg	06.27.17 16.44		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 18.40	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-006	Date Collected:	06.14.17 10.30	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	<0.00199	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-008	Date Collected:	06.14.17 10.30	Sample Depth:	1 ft

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	**25.8**	4.98	mg/kg	06.27.17 17.00		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 19.20	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555791-008	Date Collected:	06.14.17 10.30	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 **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

QC Summary 555791

COG Operating LLC

Gettysburg State #1 H

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3020942 — Matrix: Solid — Date Prep: 06.27.17
MB Sample Id: 726858-1-BLK — LCS Sample Id: 726858-1-BKS — 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 — Prep Method: E300P
Seq Number: 3020942 — Matrix: Soil — Date Prep: 06.27.17
Parent Sample Id: 555791-001 — MS Sample Id: 555791-001 S — 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 — Prep Method: E300P
Seq Number: 3020942 — Matrix: Soil — Date Prep: 06.27.17
Parent Sample Id: 555794-003 — MS Sample Id: 555794-003 S — 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 — Prep Method: TX1005P
Seq Number: 3020966 — Matrix: Solid — Date Prep: 06.24.17
MB Sample Id: 726684-1-BLK — LCS Sample Id: 726684-1-BKS — 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

QC Summary 555791

COG Operating LLC

Gettysburg State #1 H

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3020966 — Matrix: Soil — Date Prep: 06.24.17
Parent Sample Id: 555791-001 — MS Sample Id: 555791-001 S — 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 — Prep Method: SW5030B
Seq Number: 3020734 — Matrix: Solid — Date Prep: 06.26.17
MB Sample Id: 726754-1-BLK — LCS Sample Id: 726754-1-BKS — 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 — Prep Method: SW5030B
Seq Number: 3020817 — Matrix: Solid — Date Prep: 06.26.17
MB Sample Id: 726772-1-BLK — LCS Sample Id: 726772-1-BKS — 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

QC Summary 555791

COG Operating LLC

Gettysburg State #1 H

Analytical Method: BTEX by EPA 8021B
Prep Method: SW5030B
Seq Number: 3020734
Matrix: Soil
Date Prep: 06.26.17
Parent Sample Id: 555791-001
MS Sample Id: 555791-001 S
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
Prep Method: SW5030B
Seq Number: 3020817
Matrix: Soil
Date Prep: 06.26.17
Parent Sample Id: 555831-002
MS Sample Id: 555831-002 S
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

CHAIN OF CUSTODY

Page ___ Of ___

XENCO LABORATORIES

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)
www.xenco.com

Xenco Quote # | Xenco Job # 555791

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Gettysburg State #11H
Project Location: Gettysburg St #11H
Invoice To: COG Operating LLC
Attn: Robert Mcneill
600 W. Illinois
Midland TX 79701
PO Number:

Analytical Information

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH 8015M	BTEX	Chloride	Field Comments
1	North- Surf	—	6-14-17	10:30	S	1									X	X	X	
2	North- 1'	1				1									X	X	X	
3	South- Surf	—				1									X	X	X	
4	South- 1'	1				1									X	X	X	
5	East- Surf	—				1									X	X	X	
6	East- 1'	1				1									X	X	X	
7	West- Surf	—				1									X	X	X	
8	West- 1'	1																
9																		
10																		

Matrix Codes

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

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☐ 2 Day EMERGENCY
- ☐ Contract TAT
- ☐ 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

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

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by	Date Time	Received By	Relinquished By	Date Time	Received By
1	Aaron Lieb	6-19-17 10:00	Sid Butler 10:00am 6-19-17	2 Sid Butler 11:45 6-19-17		3 6/20/17 10:05
3				4		4
5						

Custody Seal # | Preserved where applicable | On Ice | Cooler Temp. 4.0c | Thermo. Corr. Factor

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

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
Jessica Kramer

Checklist reviewed by: Kelsey Brooks Date: 06/21/2017
Kelsey Brooks

Certificate of Analysis Summary 555794

COG Operating LLC, Artesia, NM

Project Name: Gettysburg State #1 H

Project Id:
Contact: Aaron Lieb
Project Location: Getysburg 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:	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
Ethylbenzene		133	0.998	<0.00200	0.00200	88.3	1.00	<0.00200	0.00200	<0.00202	0.00202
m_p-Xylenes		258	2.00	0.00438	0.00400	168	2.01	<0.00399	0.00399	<0.00403	0.00403
o-Xylene		109	0.998	<0.00200	0.00200	63.2	1.00	<0.00200	0.00200	<0.00202	0.00202
Total Xylenes		367	0.998	0.00438	0.00200	231	1.00	<0.00200	0.00200	<0.00202	0.00202
Total BTEX		725	0.998	0.00963	0.00200	533	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
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

Kelsey Brooks
Project Manager

Final 1.000

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: Getysburg 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,

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 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** Matrix: Soil Date Received:06.20.17 10.05

Lab Sample Id: 555794-001 Date Collected: 06.14.17 09.00

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**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-001	Date Collected:	06.14.17 09.00		
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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-002	Date Collected:	06.14.17 09.00	Sample Depth:	1 ft

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	<4.98	4.98	mg/kg	06.27.17 17.15	U	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 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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-002	Date Collected:	06.14.17 09.00	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 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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-003	Date Collected:	06.14.17 09.00	Sample Depth:	2 ft

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	<5.00	5.00	mg/kg	06.27.17 17.22	U	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	**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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-003	Date Collected:	06.14.17 09.00	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-004	Date Collected:	06.14.17 09.00	Sample Depth:	3 ft

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	**38.8**	4.92	mg/kg	06.27.17 17.45		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 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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-004	Date Collected:	06.14.17 09.00	Sample Depth:	3 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	<0.00200	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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-005	Date Collected:	06.14.17 09.00	Sample Depth:	4 ft

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	**88.7**	5.00	mg/kg	06.27.17 17.53		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 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'**	Matrix:	Soil	Date Received:	06.20.17 10.05
Lab Sample Id:	555794-005	Date Collected:	06.14.17 09.00	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 **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

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3020942 — Matrix: Solid — Date Prep: 06.27.17
MB Sample Id: 726858-1-BLK — LCS Sample Id: 726858-1-BKS — 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 — Prep Method: E300P
Seq Number: 3020942 — Matrix: Soil — Date Prep: 06.27.17
Parent Sample Id: 555791-001 — MS Sample Id: 555791-001 S — 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 — Prep Method: E300P
Seq Number: 3020942 — Matrix: Soil — Date Prep: 06.27.17
Parent Sample Id: 555794-003 — MS Sample Id: 555794-003 S — 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 — Prep Method: TX1005P
Seq Number: 3020966 — Matrix: Solid — Date Prep: 06.24.17
MB Sample Id: 726684-1-BLK — LCS Sample Id: 726684-1-BKS — 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

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

Analytical Method: TPH By SW8015 Mod — Prep Method: TX1005P
Seq Number: 3020966 — Matrix: Soil — Date Prep: 06.24.17
Parent Sample Id: 555791-001 — MS Sample Id: 555791-001 S — 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 — Prep Method: SW5030B
Seq Number: 3020734 — Matrix: Solid — Date Prep: 06.26.17
MB Sample Id: 726754-1-BLK — LCS Sample Id: 726754-1-BKS — 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 — Prep Method: SW5030B
Seq Number: 3020817 — Matrix: Solid — Date Prep: 06.26.17
MB Sample Id: 726772-1-BLK — LCS Sample Id: 726772-1-BKS — 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

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

Analytical Method: BTEX by EPA 8021B
Prep Method: SW5030B
Seq Number: 3020887
Matrix: Solid
Date Prep: 06.27.17
MB Sample Id: 726832-1-BLK
LCS Sample Id: 726832-1-BKS
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
Prep Method: SW5030B
Seq Number: 3020734
Matrix: Soil
Date Prep: 06.26.17
Parent Sample Id: 555791-001
MS Sample Id: 555791-001 S
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
Prep Method: SW5030B
Seq Number: 3020817
Matrix: Soil
Date Prep: 06.26.17
Parent Sample Id: 555831-002
MS Sample Id: 555831-002 S
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

QC Summary 555794

COG Operating LLC

Gettysburg State #1 H

Analytical Method: **BTEX by EPA 8021B**
Prep Method: SW5030B
Seq Number: 3020887
Matrix: Soil
Date Prep: 06.27.17
Parent Sample Id: 555831-003
MS Sample Id: 555831-003 S
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 ___

XENCO LABORATORIES

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)
www.xenco.com

Xenco Quote # | Xenco Job # 555794

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Gettysburg State # 1 1T
Project Location: Gettysburg Sta # 1 1T
Invoice To: COG Operating LLC
Attn: Robert Mcneill
600 W. Illinois
Midland TX 79701
PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH EXTENDED	BTEX	Chloride	Field Comments
1	T1- SURF	-	6.14.17	9:00 am	S	1									X	X	X	
2	T1- 1'	1				1									X	X	X	
3	T1- 2'	2				1									X	X	X	
4	T1- 3'	3				1									X	X	X	
5	T1- 4'	4				1									X	X	X	
6																		
7																		
8																		
9																		
10																		

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☐ 2 Day EMERGENCY
- ☐ Contract TAT
- ☐ 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

Data Deliverable Information

- ☐ Level II Std QC
- ☐ Level III Std QC+ Forms
- ☐ Level 3 (CLP Forms)
- ☐ TRRP Checklist
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ TRRP Level IV
- ☐ UST / RG -411

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		6-14-17 10:00 AM				
2			1 Jed Butler 10:00 AM 6-14-17	2 Jed Butler	6-14-17 11:45a	2 12/20/17 10:05
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4			3	4		4
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. 4.0C / Thermo. Corr. Factor
			5			

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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 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
Jessica Kramer

Checklist reviewed by: Kelsey Brooks Date: 06/21/2017
Kelsey Brooks

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:	32.3113899º N			103.4824753º 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 Tavarez
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.Tavarez@tetratech.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

TETRA TECH

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 32.3113899º, W 103.4824753 º. 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.tetratech.com

TETRA TECH

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-1 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 safely concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

TETRA TECH

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.

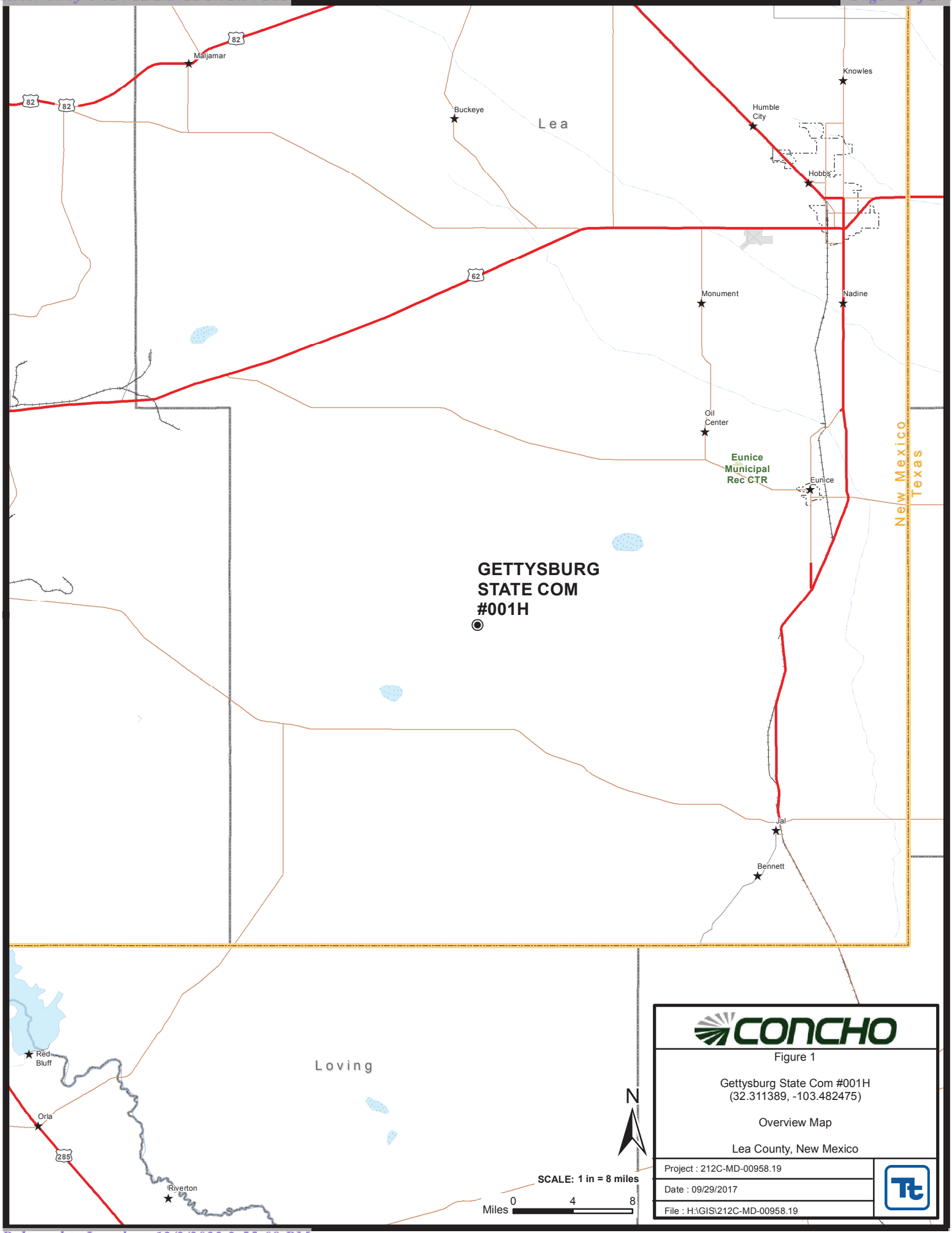
Respectfully submitted,
TETRA TECH

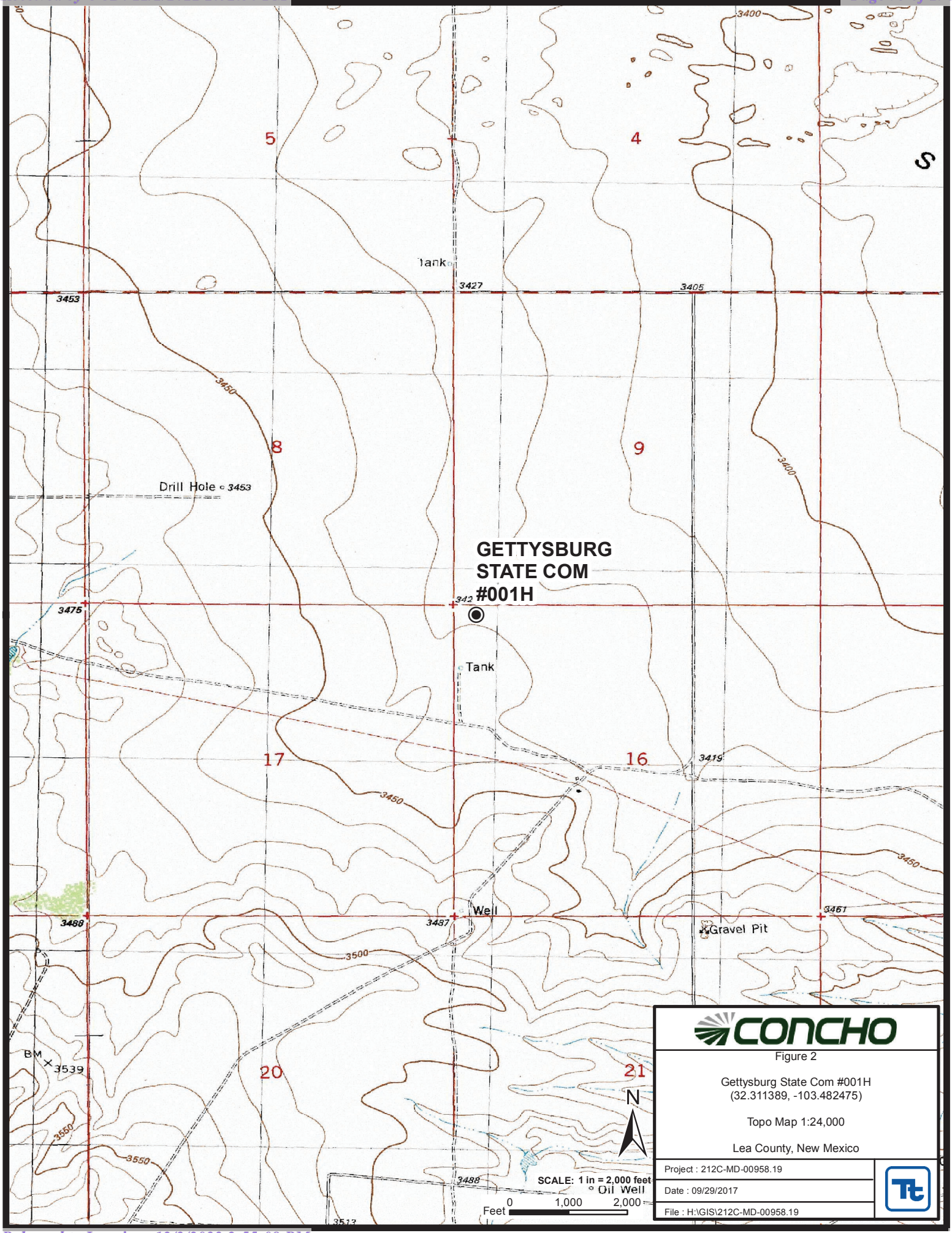
Geologist I

Ike Tavarez,
Senior Project Manager, P.G.

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

Figures


Maljamar
Buckeye
Lea
Knowles
Humble City
Hobbs
Monument
Nadine
Oil Center
Eunice Municipal Rec CTR
Eunice
New Mexico
Texas
GETTYSBURG STATE COM #001H
Jal
Bennett
Red Bluff
Loving
Orla
Riverton
N
SCALE: 1 in = 8 miles
Miles 0 4 8
CONCHO
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



CONCHO

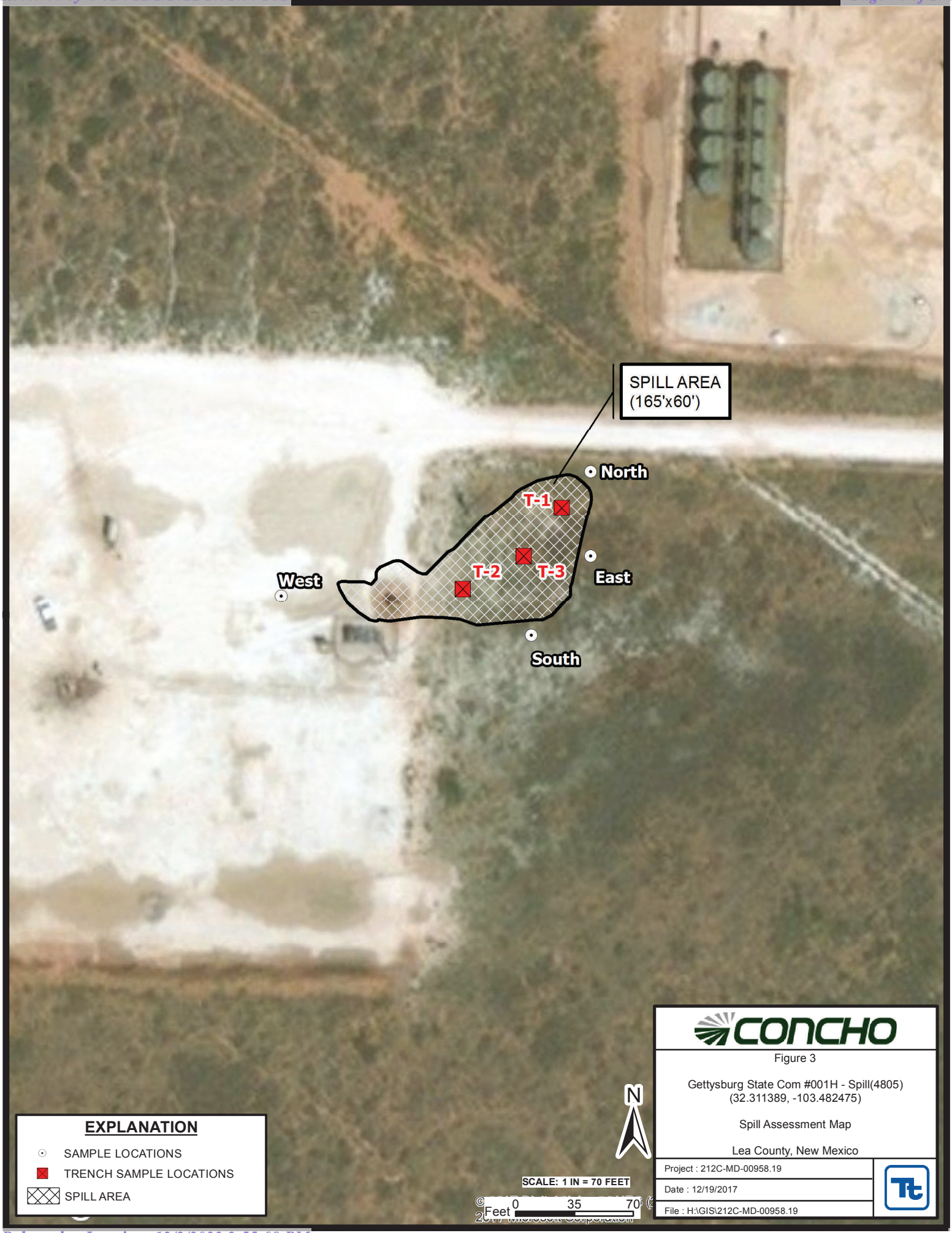
Figure 2

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

Topo Map 1:24,000

Lea County, New Mexico

Project : 212C-MD-00958.19	
Date : 09/29/2017	
File : H:\GIS\212C-MD-00958.19	



EXPLANATION

- SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- SPILL AREA

N

SCALE: 1 IN = 70 FEET

Feet 0 35 70

CONCHO

Figure 3

Gettysburg State Com #001H - Spill(4805)
(32.311389, -103.482475)

Spill Assessment Map

Lea County, New Mexico

Project : 212C-MD-00958.19	
Date : 12/19/2017	
File : H:\GIS\212C-MD-00958.19	


3' DEEP
7' DEEP
4' DEEP
North
West
East
South
T-1
T-2
T-3
EXPLANATION
SAMPLE LOCATIONS
TRENCH SAMPLE LOCATIONS
PROPOSED EXCAVATION AREA
N
SCALE: 1 IN = 70 FEET
Feet 0 35 70
CONCHO
Figure 4
Gettysburg State Com #001H - Spill(4805)
(32.311389, -103.482475)
Proposed Excavation Areas & Depths Map
Lea County, New Mexico
Project : 212C-MD-00958.19
Date : 12/19/2017
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)	Ethlybenzene (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
	"	10.0'	X		-	-	-	-	-	-	-	-	-	<4.96
T-2	10/17/2017	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
	"	10.0'	X		-	-	-	-	-	-	-	-	-	7.34
North	10/17/2017	Surface	X		<24.9	<24.9	<24.9	<24.9	0.0278	0.0555	0.0177	0.0961	0.197	<4.95
	"	1.0'	X		<25.0	<25.0	<25.0	<25.0	0.0376	0.101	0.0147	0.0639	0.217	<4.91
South	10/17/2017	Surface	X		<24.9	<24.9	<24.9	<24.9	<0.00351	<0.00351	<0.00351	<0.00351	<0.00351	<4.96
	"	1.0'	X		<24.9	<24.9	<24.9	<24.9	0.0267	0.0424	0.0114	0.0328	0.113	<4.90
East	10/17/2017	Surface	X		<25.0	<25.0	<25.0	<25.0	0.0401	0.219	0.0337	0.0936	0.386	<4.95
	"	1.0'	X		<24.9	<24.9	<24.9	<24.9	<0.00336	<0.00336	<0.00336	<0.00336	<0.00336	<4.97
West	10/17/2017	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 Repo

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 7th, 2017 2:00 PM	Date and Hour of Discovery: September 7th, 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 8th, 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	13 391
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 30	12 50
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	8 225	9	10	11	12
18	17	16	15 430	14 318	13
19	20	21	22 295	23 265	24
30	29	28	27	26	25
31	32 130	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 24.6	11	12
18	17	16	15	14	13
19	20	21	22	23 208	24 16.9
30	29	28	27	26	25
31	32	33 93.2	34	35	36

24 South 34 East

6 81	5	4 475	3	2	1
7	8	9	10	11 40	12
18	17	16	15	14	13
19	20	21 431	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	10 300	11	12
18	17	16	15	14	13
19	20 97	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	Depth Well	Depth Water	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**

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,

Kelsey Brooks
Project Manager

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

Version: 1.%

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

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

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
Benzene		2.62	0.199	2.13	0.497	14.8	0.994	19.7	0.495	0.00497	0.00201	0.0114	0.00199
Toluene		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
Ethylbenzene		35.5 D	0.399	50.4	0.497	19.0	0.994	25.7	0.495	0.00204	0.00201	<0.00199	0.00199
m,p-Xylenes		77.0 D	0.798	131	0.994	66.8	1.99	118	0.990	0.00620	0.00402	<0.00398	0.00398
o-Xylene		39.2	0.199	52.4	0.497	29.6	0.994	45.8	0.495	0.00358	0.00201	<0.00199	0.00199
Total Xylenes		116	0.199	183	0.497	96.4	0.994	164	0.495	0.00978	0.00201	<0.00199	0.00199
Total BTEX		233	0.199	330	0.497	228	0.994	307	0.495	0.0302	0.00201	0.0206	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
Chloride		8.88	4.92	12.3	4.95	33.1	4.94	109	4.92	69.7	4.92	<4.96	4.96
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 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	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C12 Range Hydrocarbons		3300	24.9	2520	24.9	4300	125	3820	125	<25.0	25.0	<25.0	25.0
C12-C28 Range Hydrocarbons		4780	24.9	3850	24.9	7800	125	7180	125	<25.0	25.0	<25.0	25.0
C28-C35 Range Hydrocarbons		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

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

Version: 1.%

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 566209

COG Operating, LLC, Midland, TX

Project Name: Gettysburg St. Com #1H

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

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
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
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-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	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		<4.96	4.96	5.35	4.96	<4.96	4.96	<4.94	4.94	5.99	4.92	<4.97	4.97
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	
	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

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

Version: 1.%

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 566209

COG Operating, LLC, Midland, TX

Project Name: Gettysburg St. Com #1H

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

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	
	Analyzed:	Oct-26-17 16:10		Oct-25-17 17:58		Oct-25-17 16:40				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
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	
	Analyzed:	Oct-26-17 16:13		Oct-26-17 16:52		Oct-26-17 17:12				Oct-26-17 17:32		Oct-26-17 17:52	
	Units/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

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

Version: 1.%

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 566209

COG Operating, LLC, Midland, TX

Project Name: Gettysburg St. Com #1H

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

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

Analysis Requested		Lab Id:	566209-019		566209-020		566209-021		566209-022		566209-023		
		Field Id:	T-3 2'		T-3 3'		T-3 4'		T-3 5'		T-3 10'		
		Depth:	2-		3-		4-		5-		10-		
		Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
		Sampled:	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		
BTEX by EPA 8021B		Extracted:	Oct-27-17 10:00		Oct-26-17 16:00		Oct-25-17 08:45		Oct-25-17 08:45				
		Analyzed:	Oct-27-17 18:41		Oct-27-17 02:19		Oct-25-17 17:02		Oct-25-17 17:20				
		Units/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		Extracted:	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		
		Analyzed:	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		
		Units/RL:	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		Extracted:	Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00				
		Analyzed:	Oct-27-17 10:10		Oct-26-17 18:31		Oct-26-17 18:50		Oct-26-17 19:10				
		Units/RL:	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			

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

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 **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

	Phone	Fax
4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031730 **Sample:** 566209-001 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031730 **Sample:** 566209-022 / 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	0.0345	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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031675 **Sample:** 566209-005 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031675 **Sample:** 566209-013 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031655 **Sample:** 566209-011 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031675 **Sample:** 566209-020 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031663 **Sample:** 566209-020 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031675 **Sample:** 566209-008 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031744 **Sample:** 566209-019 / SMP **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.

Version: 1.%

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.

Version: 1.%

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.

Version: 1.%

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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

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 #: 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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St. Com #1H

Work Orders : 566209,

Project ID:

Lab Batch #: 3031730 **Sample:** 566207-002 SD / MSD **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.

Version: 1.%

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

BTEX by EPA 8021B	SURROGATE RECOVERY STUDY				
Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
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.

Version: 1.%

BS / BSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order #: 566209 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031730 **Sample:** 7633242-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	<0.00200	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	

Analyst: ALJ **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031655 **Sample:** 7633345-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	<0.00200	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

Version: 1.%

BS / BSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order #: 566209 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031663 **Sample:** 7633348-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	0.0901	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	

Analyst: ALJ **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031638 **Sample:** 7633352-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	

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

Version: 1.%

BS / BSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order #: 566209 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/27/2017 **Date Analyzed:** 10/27/2017

Lab Batch ID: 3031744 **Sample:** 7633415-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	0.103	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	

Analyst: MNV **Date Prepared:** 10/24/2017 **Date Analyzed:** 10/24/2017

Lab Batch ID: 3031342 **Sample:** 7633143-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<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

Version: 1.%

BS / BSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order #: 566209 **Project ID:**

Analyst: MNV **Date Prepared:** 10/24/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031350 **Sample:** 7633147-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<5.00	250	253	101	250	252	101	0	90-110	20	

Analyst: MNV **Date Prepared:** 10/27/2017 **Date Analyzed:** 10/27/2017

Lab Batch ID: 3031683 **Sample:** 7633336-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<5.00	250	240	96	250	240	96	0	90-110	20	

Analyst: ARM **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031675 **Sample:** 7633284-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 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	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

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order # : 566209 **Project ID:**

Lab Batch ID: 3031638 **QC- Sample ID:** 566321-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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 **QC- Sample ID:** 566321-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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 Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order # : 566209 **Project ID:**

Lab Batch ID: 3031663 **QC- Sample ID:** 566216-016 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/27/2017 **Date Prepared:** 10/26/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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	<0.00200	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 **QC- Sample ID:** 566207-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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	<0.00202	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*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order # : 566209 **Project ID:**

Lab Batch ID: 3031744 **QC- Sample ID:** 566341-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/27/2017 **Date Prepared:** 10/27/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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	0.00630	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 **QC- Sample ID:** 566095-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/24/2017 **Date Prepared:** 10/24/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
Chloride	58.4	247	308	101	247	310	102	1	90-110	20	

Lab Batch ID: 3031342 **QC- Sample ID:** 566207-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/24/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
Chloride	93.5	247	345	102	247	344	101	0	90-110	20	

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

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order # : 566209 **Project ID:**

Lab Batch ID: 3031350 **QC- Sample ID:** 566209-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/24/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
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

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
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

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
Chloride	<4.90	245	252	103	245	250	102	1	90-110	20	

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

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St. Com #1H

Work Order # : 566209 **Project ID:**

Lab Batch ID: 3031683 **QC- Sample ID:** 566422-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/27/2017 **Date Prepared:** 10/27/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
Chloride	<4.99	250	259	104	250	258	103	0	90-110	20	

Lab Batch ID: 3031675 **QC- Sample ID:** 566209-005 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ARM

Reporting Units: mg/kg

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	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*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

XENCO LABORATORIES

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)

www.xenco.com

CHAIN OF CUSTODY

Page 1 Of 3

Xenco Quote #

Xenco Job # 566209

Client / Reporting Information

Company Name / Branch: COG Operating, LLC

Company Address: 2407 Pecos Ave. Artesia NM 88210

Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; alieb@concho.com; rhaskell@concho.com

Project Contact: Sheldon Hitchcock

Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: Gettysburg St. Com #1H

Project Location: D-16-23S-34E

Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701

PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	TCLP	TPH EXTENDED	BTEX	CHLORIDES	Field Comments
1	T-1 Surface	0	10/17/17	9:00	S	1												
2	T-1 1'	1		9:02	S	1												
3	T-1 2'	2		9:04	S	1												
4	T-1 3'	3		9:06	S	1												
5	T-1 4'	4		9:08	S	1												
6	T-1 5'	5		9:10	S	1												
7	T-1 10'	10		9:15	S	1												
8	T-2 Surface	0		9:20	S	1												
9	T-2 1'	1		9:22	S	1												
10	T-2 2'	2		9:24	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

TAT Starts Day received by Lab, if received by 5:00 pm

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

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Sheldon Hitchcock	10/20/17 10:00am	Sid Butler 10-19-17 10A	Sid Butler	10-19-17 1145 A	Corrine Hernandez
2	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3						
4	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
5						13c

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

XENCO LABORATORIES
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)
www.xenco.com

CHAIN OF CUSTODY

Xenco Quote # | Xenco Job # 5666209

Client / Reporting Information

Company Name / Branch: COG Operating, LLC
Company Address: 2407 Pecos Ave. Artesia NM 88210
Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; alieb@concho.com; rhaskell@concho.com
Project Contact: Sheldon Hitchcock
Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: Gettysburg St. Com #1H
Project Location: D-16-23S-34E
Invoice To: COG Operating, LLC, Attn: Robert McNeill, 600 W. Illnois Ave., Midland Tx, 79701
PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	Ice	TPH EXTENDED	BTEX	CHLORIDES	Field Comments
1	T-2 3'	3	10/17/17	9:26	S	1												
2	T-2 4'	4		9:28	S	1												
3	T-2 5'	5		9:30	S	1												
4	T-2 6'	6		9:32	S	1												
5	T-2 7'	7		9:34	S	1												
6	T-2 12'	12		9:40	S	1												
7	T-3 Surface	0		10:00	S	1												
8	T-3 1'	1		10:02	S	1												
9	T-3 2'	2		10:04	S	1												
10	T-3 3'	3		10:06	S	1												

Turnaround Time (Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [x] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

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

Notes:

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Sheldon Hitchcock	10/20/17 10:00	Sid Butler 10-19-17 10A	Sid Butler	10-19-17 1145 A	
2						
3						
4						
5						

Custody Seal # | Preserved where applicable | On Ice | Cooler Temp. 13C | Thermo. Corr. Factor

XENCO LABORATORIES

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)

www.xenco.com

CHAIN OF CUSTODY

Page 3 Of 3

Xenco Quote # | Xenco Job # 5661209

Client / Reporting Information

Company Name / Branch: COG Operating, LLC

Company Address: 2407 Pecos Ave. Artesia NM 88210

Email: slhitchcock@concho.com Phone No: 575-703-6475

dneel2@concho.com; alieb@concho.com; rhaskell@concho.com

Project Contact: Sheldon Hitchcock

Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: Gettysburg St. Com #1H

Project Location: D-16-23S-34E

Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701

PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	None	TPH EXTENDED	BTEX	CHLORIDES	Field Comments
1	T-3 4'	4	10/17/17	10:08	S	1								1	1	1	1	
2	T-3 5'	5	"	10:10	S	1								1	1	1	1	
3	T-3 10'	10	"	10:20	S	1								1			1	
4					S	1												
5					S	1												
6					S	1												
7					S	1												
8					S	1												
9					S	1												
10					S	1												

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☒ 7 Day TAT
- ☐ 2 Day EMERGENCY
- ☐ Contract TAT
- ☐ 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

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

Notes:

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Sheldon Hitchcock	10/20/17 10:00	Sid Butler 10-19-17 10A	Sid Butler	10-19-17 1145A	
2						
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
						13C

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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 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,

Kelsey Brooks
Project Manager

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

Version: 1.%

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

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

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	
BTEX 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
Benzene		0.0278	0.0100	0.0376	0.0100	<0.00351	0.00351	0.0267	0.0100	0.0401	0.0100	<0.00336	0.00336
Toluene		0.0555	0.0100	0.101	0.0100	<0.00351	0.00351	0.0424	0.0100	0.219	0.0100	<0.00336	0.00336
Ethylbenzene		0.0177	0.0100	0.0147	0.0100	<0.00351	0.00351	0.0114	0.0100	0.0337	0.0100	<0.00336	0.00336
m,p-Xylenes		0.0532	0.0200	0.0417	0.0200	<0.00702	0.00702	0.0328	0.0200	0.0663	0.0200	<0.00671	0.00671
o-Xylene		0.0429	0.0100	0.0222	0.0100	<0.00351	0.00351	<0.0100	0.0100	0.0273	0.0100	<0.00336	0.00336
Total Xylenes		0.0961	0.0100	0.0639	0.0100	<0.00351	0.00351	0.0328	0.0100	0.0936	0.0100	<0.00336	0.00336
Total BTEX		0.197	0.0100	0.217	0.0100	<0.00351	0.00351	0.113	0.0100	0.386	0.0100	<0.00336	0.00336
Chloride by EPA 300	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
Chloride		<4.95	4.95	<4.91	4.91	<4.96	4.96	<4.90	4.90	<4.95	4.95	<4.97	4.97
TPH by Texas1005	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
C6-C12 Range Hydrocarbons		<24.9	24.9	<25.0	25.0	<24.9	24.9	<24.9	24.9	<25.0	25.0	<24.9	24.9
C12-C28 Range Hydrocarbons		<24.9	24.9	<25.0	25.0	<24.9	24.9	<24.9	24.9	<25.0	25.0	<24.9	24.9
C28-C35 Range Hydrocarbons		<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

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

Version: 1.%

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 566212

COG Operating, LLC, Midland, TX

Project Name: Gettysburg St Com #1H

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

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					
BTEX 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 BTEX		<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				

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

Version: 1.%

Kelsey Brooks
Project Manager

Final 1.000

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

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031320 **Sample:** 566212-001 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031320 **Sample:** 566212-006 / SMP **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.

Version: 1.%

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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031638 **Sample:** 566212-008 / SMP **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031320 **Sample:** 7633149-1-BKS / BKS **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031366 **Sample:** 7633181-1-BSD / BSD **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.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: Gettysburg St Com #1H

Work Orders : 566212,

Project ID:

Lab Batch #: 3031732 **Sample:** 566212-007 S / MS **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.

Version: 1.%

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

BTEX by EPA 8021B Analytes	SURROGATE RECOVERY STUDY 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.

Version: 1.%

BS / BSD Recoveries

Project Name: Gettysburg St Com #1H

Work Order #: 566212 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031366 **Sample:** 7633181-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	<0.00201	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	

Analyst: ALJ **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031732 **Sample:** 7633241-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	0.126	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

Version: 1.%

BS / BSD Recoveries

Project Name: Gettysburg St Com #1H

Work Order #: 566212 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031638 **Sample:** 7633352-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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	

Analyst: MNV **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031539 **Sample:** 7633172-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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	<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

Version: 1.%

BS / BSD Recoveries

Project Name: Gettysburg St Com #1H

Work Order #: 566212 **Project ID:**

Analyst: ARM **Date Prepared:** 10/24/2017 **Date Analyzed:** 10/24/2017

Lab Batch ID: 3031320 **Sample:** 7633149-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 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

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St Com #1H

Work Order # : 566212 **Project ID:**

Lab Batch ID: 3031366 **QC- Sample ID:** 566207-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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	<0.00202	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 **QC- Sample ID:** 566321-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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	

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

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St Com #1H

Work Order # : 566212 **Project ID:**

Lab Batch ID: 3031732 **QC- Sample ID:** 566212-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** ALJ

Reporting Units: mg/kg

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	0.123	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

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
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

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
Chloride	5.80	248	266	105	248	269	106	1	90-110	20	

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

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

Form 3 - MS / MSD Recoveries

Project Name: Gettysburg St Com #1H

Work Order # : 566212 **Project ID:**

Lab Batch ID: 3031320 **QC- Sample ID:** 566212-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/24/2017 **Date Prepared:** 10/24/2017 **Analyst:** ARM

Reporting Units: mg/kg

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)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(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.

XENCO LABORATORIES

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)
www.xenco.com

CHAIN OF CUSTODY

Page 1 Of 1

Xenco Quote #

Xenco Job # 566212

Client / Reporting Information

Company Name / Branch: COG Operating, LLC
Company Address: 2407 Pecos Ave. Artesia NM 88210
Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; alieb@concho.com; rhaskell@concho.com
Project Contact: Sheldon Hitchcock
Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: Gettysburg St. Com #1H
Project Location: D-16-23S-34E
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

Analytical Information

Matrix Codes

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

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	None	TPH EXTENDED	BTEX	CHLORIDES	Field Comments
1	N. Surface	0	10/17/17		S	1									/	/	/	
2	N. 1'	1			S	1									/	/	/	
3	S. Surface	0			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)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [x] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [ ] Contract TAT
- [ ] 3 Day EMERGENCY

TAT Starts Day received by Lab, if received by 5:00 pm

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

Notes:

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

FED-EX / UPS: Tracking

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Sheldon Hitchcock	10/20/17	Sid Butler 10-19-17 10A	Sid Butler	10-19-17 1145 A	
2	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
						13C

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

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 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

CARDINAL Laboratories

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 accreditated 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,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 2 (H900112-02)

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 *98.5 %* *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	**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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 3 (H900112-03)

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 *97.0 %* *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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 4 (H900112-04)

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 *98.5 %* *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	**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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 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, 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 *94.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *93.8 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 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, 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*	**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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 7 (H900112-07)

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 *98.5 %* *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*	**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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 - 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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: 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, 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*	**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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: T2 BOTTOM (H900112-13)

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 *97.5 %* *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 *91.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.2 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: 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, 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	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*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Celey D. Keene, Lab Director/Quality Manager

1 of 2

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	MMX	**BILL TO**	
Project Manager:	Lupe Carrasco	P.O. #:	
Address:		Company:	COG
City:	State: Zip:	Attn:	Sheldon H.
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	Gettysburg State Com #1	State: Zip:	
Project Location:		Phone #:	
Sampler Name:	Lupe Carrasco	Fax #:	

FOR LAB USE ONLY				MATRIX							PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX	TPH	Chlorides										
H900112																										
1	SW - 1												1/14/19		X	X	X										
2	SW - 2														X	X	X										
3	SW - 3														X	X	X										
4	SW - 4														X	X	X										
5	SW - 5														X	X	X										
6	SW - 6														X	X	X										
7	SW - 7														X	X	X										
8	SW - 8														X	X	X										
9	SW - 9														X	X	X										
10	SW - 10														X	X	X										

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 1/14/19	Received By:	Tamara Oldaker
	Time: 3:55pm		
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)	Sample Condition		CHECKED BY: (Initials)
Sampler - UPS - Bus - Other: 8.9°C #97	Cool: Yes / No	Intact: Yes / No	TO

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:
email
lupemmx inc@gmail.com
Rush

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

2 of 2

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	MMX	**BILL TO**	
Project Manager:	Lupe Carrasco	P.O. #:	
Address:		Company:	COG
City:	State: Zip:	Attn:	Sheldon Hitchcock
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	Gettysburg State Com #1	State: Zip:	
Project Location:		Phone #:	
Sampler Name:	Lupe Carrasco	Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX	TPH	Chlorides								
H900112																									
11	SW-11	C				X							11/4/19		X	X	X								
12	T1 Bottom	C				X									X	X	X								
13	T2 Bottom	C				X									X	X	X								
14	T3 Bottom	C				X									X	X	X								

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 11/4/19	Received By:	
	Time: 3:55pm		
Relinquished By:	Date:	Received By:	
	Time:		

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:
REMARKS:	email: lupemmxinc@gmail.com		
	Rush		

Delivered By: (Circle One)	Sample Condition		CHECKED BY: (Initials)
Sampler - UPS - Bus - Other: 8.9c #97	Cool: ☐ Yes ☐ No	Intact: ☑ Yes ☐ No	TO

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

CARDINAL Laboratories

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 accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

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 *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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 WEST BOTTOM

H900192-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**32.0**		16.0	mg/kg	4	9012207	AC	22-Jan-19	4500-Cl-B	
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*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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
Cardinal Laboratories										
Inorganic Compounds										
Chloride	<16.0		16.0	mg/kg	4	9012207	AC	22-Jan-19	4500-Cl-B	
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*	
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*	
Surrogate: 1-Chlorooctadecane			*96.4 %*	*37.6-147*		*9012114*	MS	*22-Jan-19*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

T1 - T3

H900192-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**16.0**		16.0	mg/kg	4	9012207	AC	22-Jan-19	4500-Cl-B	
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*	
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*	
Surrogate: 1-Chlorooctadecane			*92.3 %*	*37.6-147*		*9012114*	MS	*22-Jan-19*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%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	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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
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*			

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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*			

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	MMX	**BILL TO**	
Project Manager:	Lupe Carrasco	P.O. #:	~~COG~~
Address:		Company:	COG
City:	State: Zip:	Attn:	Sheldon Hitchcock
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	Gethsemane State Com #1H	State: Zip:	
Project Location:		Phone #:	
Sampler Name:		Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Chlorides	BTEX	TPH
H900192																	
1	T2 West Bottom	X				X							1/21/19		X	X	X
2	T2-T3	X				X									X	X	X
3	~~T1-T2~~ T1-T3 *	X				X									X	X	X

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 1/21/19	Received By:	
	Time: 11:35am	Tamara Oldaker	
Relinquished By:	Date:	Received By:	
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 2.4°c #97

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

CHECKED BY: (Initials) TC

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:
lupemmxinc@gmail.com
* Sample ID revised as per Lupe. 1/22/19 ch
A Rush

APPENDIX VII

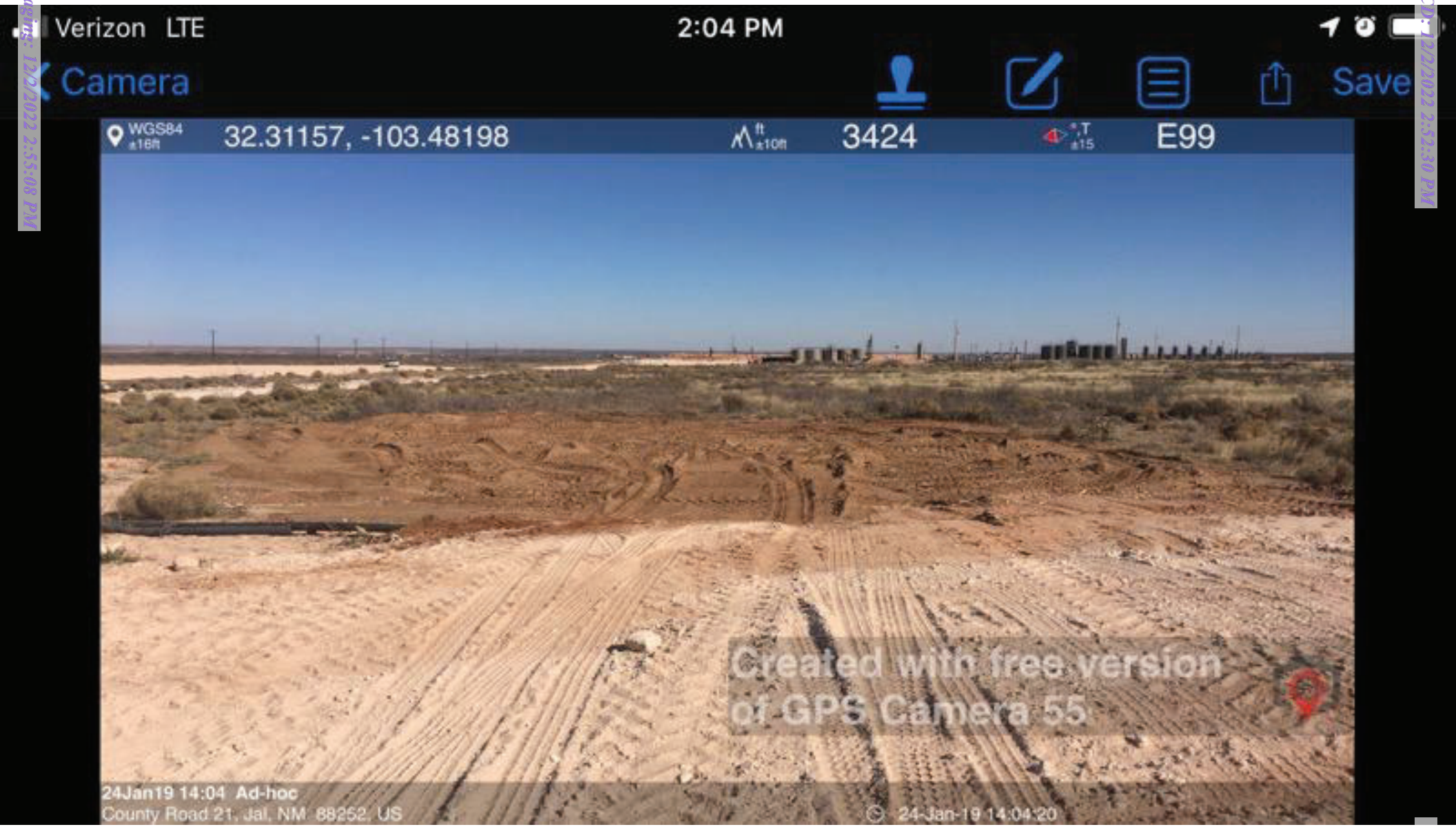
SW W NW
10 240 270 300 330

280°W (T) 32.820232°, -104.028732° ±96110.3ft ▲ 3609ft

10 Jan 2019, 12:32:41


NW
N
NE
330
0
30
60
16°N (T)
32.820232°, -104.028732° ±96248.1ft
3609ft
10 Jan 2019, 12:34:45


N
NE
E
330
0
30
60
90
34°NE (T)
32.311443°, -103.481865° ±16.4ft
3424ft
CAUTION!
10 Jan 2019, 12:35:38



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 163449

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 163449
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	Area of remediation will need to meet 19.15.29.13 NMAC at plugging and abandonment.	12/2/2022