CONCHO

October 20, 2020

Oil Conservation Division, District II
811 S. First St.
Artesia, NM 88210

Bureau of Land Management, CFO
620 E. Green St.
Carlsbad, NM 88220

Re: Closure Report
Blue Thunder 5 Federal Com #006H (5.28.18)
2RP-4795
GPS: 32.6919518, -103.883461
Unit Letter H, Section 5, Township 19 South, Range 31 East
Eddy County, New Mexico

To Whom it May Concern,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred at the Blue Thunder 5 Federal Com #006H, located in Unit Letter H, Section 5, Township 19 South, Range 31 East Eddy County, New Mexico. The spill site coordinates are 32.6919518**,** -103.883461.

BACKGROUND

The release was discovered on May 28, 2018. An initial C-141 was submitted and accepted by the New Mexico Oil Conservation Division (NMOCD). The release was caused by the gasket on the filter pot failing. The release was on location and in the pasture. Approximately thirteen (13) barrels of produced water was released, with ten (ten) barrels being recovered using a vacuum truck. The initial C-141 is attached in Appendix A.

GROUNDWATER AND REGULATORY

A search of a groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) and the United States Geological Survey (USGS) National Water Information System was conducted to determine the average depth to groundwater of the Release Site and identify any registered water wells within a 1/2 Mile of the Release Site. No water wells were found within a ½ mile of the Release site. The nearest NMOSE wells were found at 0.67 miles and 0.75 miles with a well depth of 300 ft BGS and 120 ft BGS respectively. The nearest USGS wells are located over 2.5 miles to the northeast and northwest of the release area and show a depth to water greater than 100'.

A risk-based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, the affected area has low potential for cave and karst, and no other receptors (water wells, playas, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
Low Karst	>100’

Delineation and Closure Criteria:

Remedial Action Levels (RALs)	
Chlorides	20,000 mg/kg
TPH (GRO and DRO and MRO)	2,500 mg/kg
TPH (GRO and DRO)	1,000 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

INITIAL ASSESMENT

- Initial Assessment was done by BBC International on behalf of Concho Resources (COG). A workplan was submitted to NMOCD District II and Brad Billing on Nov. 16, 2018. No response has been received to date concerning the submitted workplan. In order to remediate the release in a timely manner, COG performed the remediation at risk.

REMEDIAL ACTIONS

- The impacted area was excavated to a depth of approximately four (4) feet BGS.
- Confirmation samples were collected excavation bottom (CS-1, CS-2, CS-3 and CS-4) and sidewall samples (CS north, CS south, CS east and CS east).
- Confirmation soil samples were taken every 200 square feet from bottom and sidewalls of the excavation per NMAC 19.15.29. Table 1 shows the sample depths and analytical results.
- All the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- The site was backfilled with clean “like” material.
- The analytical data shown in Table 1 show that the release area meets NMOCD closure criteria (NMAC 19.15.29.12(E) Table I) and NMAC 19.15.29.13(D)(1).

SITE RECLAMATION AND RESTORATION

Concho performed the reclamation and revegetation in the pasture area per NMED 19.15.29.13. All the excavated material removed was hauled to a NMOCD approved disposal. Once excavated, soil samples were collected from the sidewalls to confirm the removal of impact soil greater than 600 mg/kg chlorides or background (whichever is greater). The backfilled material will be non-contaminated with concentrations below 600 mg/kg chlorides. The disturbed area will be reseeded per BLM guidelines when appropriate.

CLOSURE REQUEST

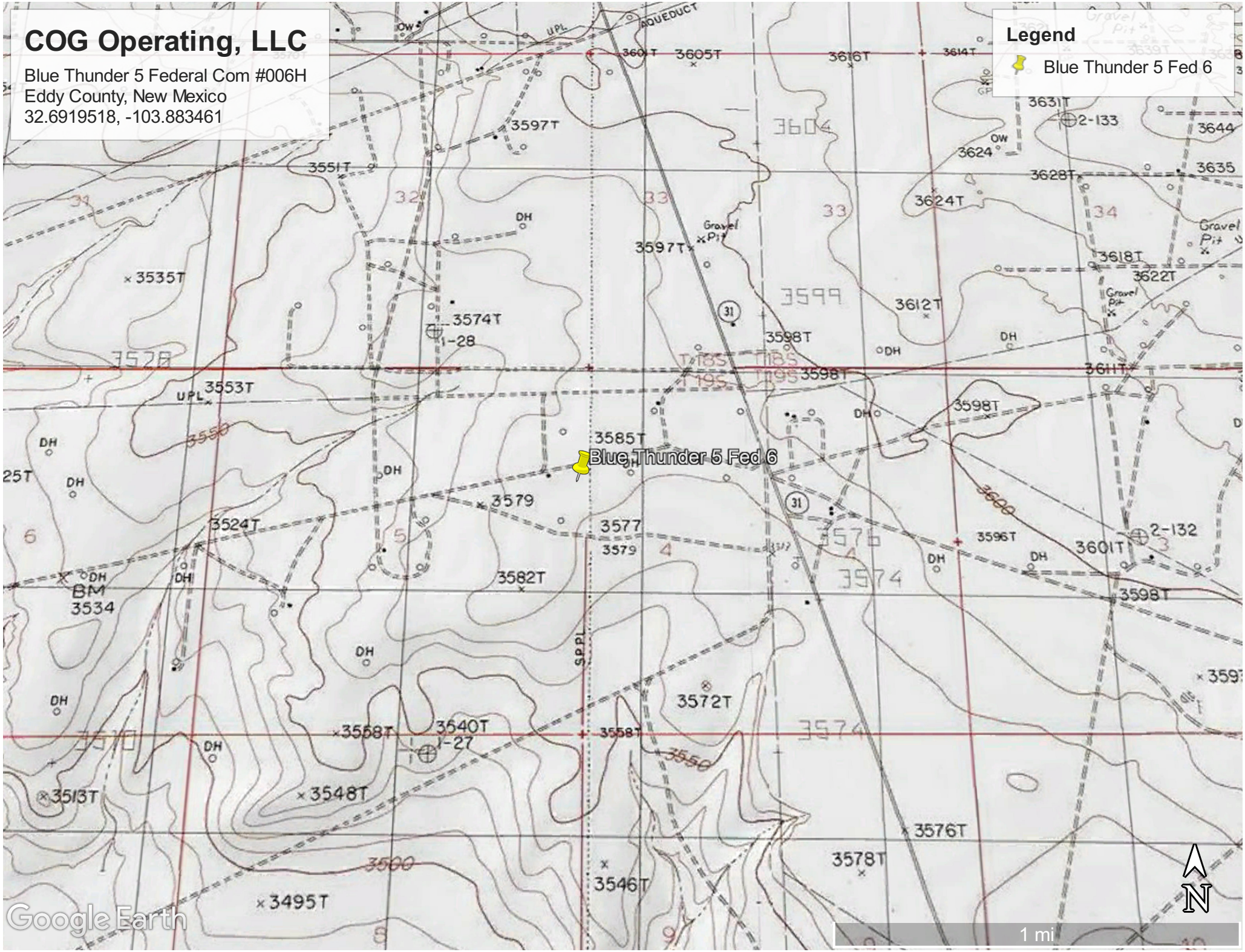
COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the Bureau of Land Management grant closure approval for the Blue Thunder 5 Fed Com #006H that occurred on May 28, 2018 (RP# 2RP-4795).

Should you have any questions or concerns on the closure report, please do not hesitate to contact me.

Sincerely,

Jacqui Harris
Senior HSE Coordinator
Jharris2@concho.com

Maps


COG Operating, LLC
Blue Thunder 5 Federal Com #006H
Eddy County, New Mexico
32.6919518, -103.883461
Legend
Blue Thunder 5 Fed 6
Blue Thunder 5 Fed 6
3597T
3605T
3616T
3614T
3631T
2-133
3644
3624
3635
3628T
3624T
3535T
3574T
1-28
3598T
3612T
3618T
3622T
3553T
3585T
3579
3577
3524T
3582T
3596T
2-132
3601T
3534
3572T
3558T
3540T
1-27
3548T
3513T
3576T
3578T
3546T
3495T
Google Earth
1 mi
N


COG Operating LLC
Blue Thunder 5 Fed Com #006H
Eddy County, New Mexico
32.69233 -103.88329
Legend
Bottom Hole Confirmation Samples
Release Area
Sidewall Confirmation Samples
CS N Wall
CS E Wall
CS BH 4
CS BH 3
CS BH2
CS S Wall
CS W Wall
CS BH 1
Google Earth
© 2020 Google
N
40 ft

Table of Analytical Data

Table 1
COG Operating LLC.
Blue Thunder 5 Federal 6H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	MRO	*Total*	GRO	DRO	*Total*			
Average Depth to Groundwater (ft) >100 ft														
NMOCD RAL Limits (mg/kg)					**-**	**-**	**-**	**2,500**	**-**	**-**	**1,000**	**10**	**50**	**20,000**
CS Bottom 1	5/21/2020	4	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00202	246
CS Bottom -2	5/21/2020	4	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	232
CS Bottom -3	5/21/2020	4	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	866
CS Bottom 4	5/21/2020	4	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	881
CS North Wall	5/21/2020	-	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.00200	<0.00200	240
CS South Wall	5/21/2020	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	241
CS East Wall	5/21/2020	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	242
CS West Wall	5/21/2020	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	246

(-) Not Analyzed

Excavation Photos

Backfill Photo

Appendix A

C-141

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC (OGRID #229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: **Blue Thunder 5 Federal Com #006H**	Facility Type: Tank Battery

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-41614

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	05	19S	31E	1,740	North	125	East	Eddy

Latitude 32.6919518 **Longitude** -103.883461 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 13 bbl.	Volume Recovered: 10 bbl.
Source of Release: Gasket Failure	Date and Hour of Occurrence: May 28, 2018 11:00am	Date and Hour of Discovery: May 28, 2018 11:00am
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 gasket on the filter pot failing. The gasket is being replaced.

Describe Area Affected and Cleanup Action Taken.*

The release was on location and in the 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: DeAnn Grant	OIL CONSERVATION DIVISION
Printed Name: DeAnn Grant	Approved by Environmental Specialist:
Title: HSE Administrative Assistant	Approval Date: / Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval: / Attached ☐
Date: May 29, 2018 Phone: 432-253-4513	

* Attach Additional Sheets If Necessary

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-4795
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	175 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ■ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ■ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ■ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ■ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ■ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ■ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ■ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ■ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ■ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ■ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ■ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ■ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ■ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ■ Data table of soil contaminant concentration data
- ■ Depth to water determination
- ■ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ■ Topographic/Aerial maps
- ■ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-4795
Facility ID	
Application ID	

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: Rebecca Haskell Title: Senior HSE Coordinator

Signature: Rebecca Haskell Date: 11/15/18

email: rhaskell@concho.com Telephone: (432) 683-7443

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1816336550
District RP	2RP-4795
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: Jacqui Harris Title: Senior HSE Coordinator

Signature: Jacqui Harris Date: 10.20.20

email: jharris2@concho.com Telephone: 575-496-0780

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: Bradford Billings Date: 12/08/2020

Printed Name: Bradford Billings Title: E.Spec.A

Appendix B

Site Assessment Data


Blue Thunder 5 Federal Com #006H
Karst Occurance Map
Legend
Blue Thunder 5 Fed Com 6H
Low Karst Potential
222
Blue Thunder 5 Fed Com 6H
Google Earth
© 2020 Google
N
2000 ft

National Flood Hazard Layer FIRMette

FEMA

103°53'19"W 32°41'46"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

103°52'42"W 32°41'16"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/12/2020 at 1:38 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00849 POD1	CP	LE	3	1	3	35	18S	31E	608012	3618757*	3512	300		
CP 00829 POD1	CP	LE		2	4	16	19S	31E	606165	3614009*	3973	120		

Average Depth to Water: --

Minimum Depth: --

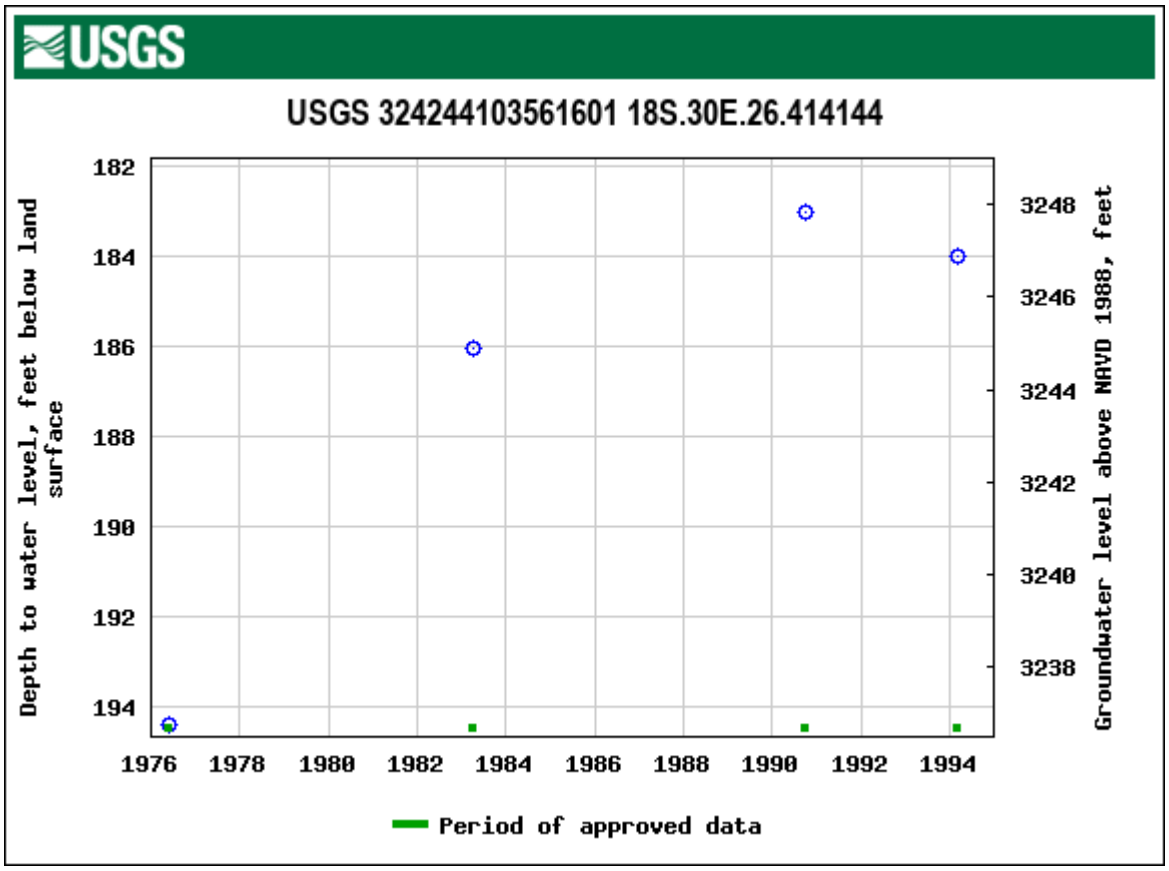
Maximum Depth: --

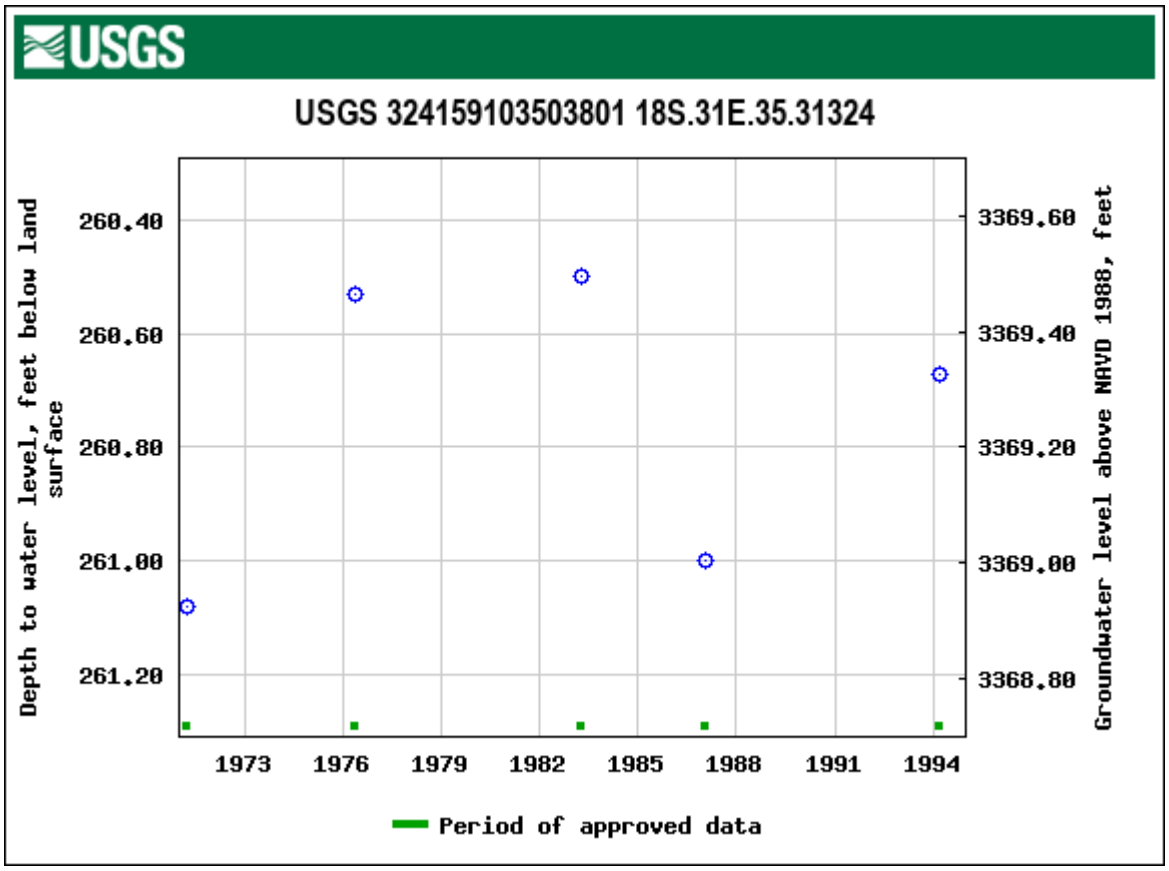
Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 604666.15 **Northing (Y):** 3617688.43 **Radius:** 5000

***UTM location was derived from PLSS - see Help**


USGS
USGS 324244103561601 18S.30E.26.414144
Depth to water level, feet below land surface
182
184
186
188
190
192
194
Groundwater level above NAVD 1988, feet
3248
3246
3244
3242
3240
3238
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
Period of approved data


USGS
USGS 324159103503801 18S.31E.35.31324
Depth to water level, feet below land surface
260.40
260.60
260.80
261.00
261.20
Groundwater level above NAVD 1988, feet
3369.60
3369.40
3369.20
3369.00
3368.80
1973
1976
1979
1982
1985
1988
1991
1994
Period of approved data

Appendix C

Analytical Reports

Certificate of Analysis Summary 662580

COG Operating LLC, Artesia, NM

Project Name: Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Project Id:
Contact: Ike Tavarez
Project Location: Eddy County, NM

Date Received in Lab: Tue 05.26.2020 15:26
Report Date: 05.28.2020 14:28
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	662580-001		662580-002		662580-003		662580-004		662580-005		662580-006	
	Field Id:	CS Bottom Hole-1 4"		CS Bottom Hole-2 4"		CS Bottom Hole-3 4"		CS Bottom Hole-4 4"		CS North Wall		CS South Wall	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	05.21.2020 00:00		05.21.2020 00:00		05.21.2020 00:00		05.21.2020 00:00		05.21.2020 00:00		05.21.2020 00:00	
BTEX by EPA 8021B	***Extracted:***	05.26.2020 17:00		05.26.2020 17:00		05.26.2020 17:00		05.26.2020 17:00		05.26.2020 17:00		05.27.2020 16:00	
	Analyzed:	05.26.2020 19:29		05.26.2020 19:49		05.26.2020 20:09		05.26.2020 20:29		05.26.2020 20:49		05.27.2020 17:36	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200
Ethylbenzene		<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00398	0.00398	<0.00398	0.00398	<0.00396	0.00396	<0.00402	0.00402	<0.00401	0.00401	<0.00400	0.00400
o-Xylene		<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	05.27.2020 10:30		05.27.2020 10:30		05.27.2020 10:30		05.27.2020 10:30		05.27.2020 10:30		05.27.2020 10:30	
	Analyzed:	05.27.2020 11:23		05.27.2020 11:42		05.27.2020 11:49		05.27.2020 11:56		05.27.2020 12:02		05.27.2020 12:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		246	5.03	232	4.96	866	5.05	881	25.0	240	4.97	241	5.03
TPH By SW8015 Mod	***Extracted:***	05.26.2020 16:00		05.26.2020 16:00		05.26.2020 16:00		05.26.2020 16:00		05.26.2020 16:00		05.26.2020 16:00	
	Analyzed:	05.27.2020 06:43		05.27.2020 03:07		05.27.2020 03:27		05.27.2020 03:46		05.27.2020 04:05		05.27.2020 04:24	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons		<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.8	49.8	<49.9	49.9	<49.9	49.9
Diesel Range Organics		<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.8	49.8	<49.9	49.9	<49.9	49.9
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.8	49.8	<49.9	49.9	<49.9	49.9
Total TPH		<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.8	49.8	<49.9	49.9	<49.9	49.9

John Builes
Project Manager

Certificate of Analysis Summary 662580

COG Operating LLC, Artesia, NM

Project Name: Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Project Id:
Contact: Ike Tavarez
Project Location: Eddy County, NM

Date Received in Lab: Tue 05.26.2020 15:26
Report Date: 05.28.2020 14:28
Project Manager: Jessica Kramer

Analysis Requested							
	Lab Id:	662580-007		662580-008			
	Field Id:	CS East Wall		CS West Wall			
	Depth:						
	Matrix:	SOIL		SOIL			
	Sampled:	05.21.2020 00:00		05.21.2020 00:00			
BTEX by EPA 8021B	***Extracted:***	05.26.2020 16:45		05.26.2020 16:45			
	Analyzed:	05.26.2020 19:14		05.26.2020 19:34			
	Units/RL:	mg/kg	RL	mg/kg	RL		
Benzene		<0.00200	0.00200	<0.00198	0.00198		
Toluene		<0.00200	0.00200	<0.00198	0.00198		
Ethylbenzene		<0.00200	0.00200	<0.00198	0.00198		
m,p-Xylenes		<0.00399	0.00399	<0.00397	0.00397		
o-Xylene		<0.00200	0.00200	<0.00198	0.00198		
Total Xylenes		<0.00200	0.00200	<0.00198	0.00198		
Total BTEX		<0.00200	0.00200	<0.00198	0.00198		
Chloride by EPA 300	***Extracted:***	05.27.2020 10:30		05.27.2020 10:30			
	Analyzed:	05.27.2020 12:29		05.27.2020 12:56			
	Units/RL:	mg/kg	RL	mg/kg	RL		
Chloride		242	5.02	246	4.98		
TPH By SW8015 Mod	***Extracted:***	05.26.2020 16:00		05.26.2020 16:00			
	Analyzed:	05.27.2020 04:44		05.27.2020 05:03			
	Units/RL:	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons		<50.0	50.0	<50.0	50.0		
Diesel Range Organics		<50.0	50.0	<50.0	50.0		
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<50.0	50.0		
Total TPH		<50.0	50.0	<50.0	50.0		

John Builes
Project Manager

Analytical Report 662580

for

COG Operating LLC

Project Manager: Ike Tavarez

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

05.28.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-6)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

05.28.2020

Project Manager: **Ike Tavarez**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **662580**
Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795
Project Address: Eddy County, NM

Ike Tavarez:

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) 662580. 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. 662580 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,

John Builes
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Sample Cross Reference 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS Bottom Hole-1 4"	S	05.21.2020 00:00		662580-001
CS Bottom Hole-2 4"	S	05.21.2020 00:00		662580-002
CS Bottom Hole-3 4"	S	05.21.2020 00:00		662580-003
CS Bottom Hole-4 4"	S	05.21.2020 00:00		662580-004
CS North Wall	S	05.21.2020 00:00		662580-005
CS South Wall	S	05.21.2020 00:00		662580-006
CS East Wall	S	05.21.2020 00:00		662580-007
CS West Wall	S	05.21.2020 00:00		662580-008

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Project ID:
Work Order Number(s): *662580*

Report Date: *05.28.2020*
Date Received: *05.26.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3127056 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Samples affected are: 7704127-1-BKS,7704127-1-BSD,662580-001 S,662580-001 SD,662580-001,662580-002,662580-003,662580-005.

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-1 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-001	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**246**	5.03	mg/kg	05.27.2020 11:23		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.27.2020 06:43	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.27.2020 06:43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.27.2020 06:43	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.27.2020 06:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-130	05.27.2020 06:43	
o-Terphenyl	84-15-1	115	%	70-130	05.27.2020 06:43	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-1 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-001	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	AMF	Date Prep:	05.26.2020 17:00	Basis:	Wet Weight
Seq Number:	3127056				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.26.2020 19:29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.26.2020 19:29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.26.2020 19:29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.26.2020 19:29	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.26.2020 19:29	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.26.2020 19:29	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.26.2020 19:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	144	%	70-130	05.26.2020 19:29	**
1,4-Difluorobenzene	540-36-3	101	%	70-130	05.26.2020 19:29	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-2 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-002	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**232**	4.96	mg/kg	05.27.2020 11:42		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.27.2020 03:07	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.27.2020 03:07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.27.2020 03:07	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.27.2020 03:07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-130	05.27.2020 03:07	
o-Terphenyl	84-15-1	101	%	70-130	05.27.2020 03:07	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-2 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-002	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	AMF	Date Prep:	05.26.2020 17:00	Basis:	Wet Weight
Seq Number:	3127056				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.26.2020 19:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.26.2020 19:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.26.2020 19:49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.26.2020 19:49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.26.2020 19:49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.26.2020 19:49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.26.2020 19:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	157	%	70-130	05.26.2020 19:49	**
1,4-Difluorobenzene	540-36-3	109	%	70-130	05.26.2020 19:49	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-3 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-003	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**866**	5.05	mg/kg	05.27.2020 11:49		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.27.2020 03:27	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.27.2020 03:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.27.2020 03:27	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.27.2020 03:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-130	05.27.2020 03:27	
o-Terphenyl	84-15-1	108	%	70-130	05.27.2020 03:27	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-3 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-003	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	AMF	Date Prep:	05.26.2020 17:00	Basis:	Wet Weight
Seq Number:	3127056				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.26.2020 20:09	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.26.2020 20:09	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.26.2020 20:09	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	05.26.2020 20:09	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.26.2020 20:09	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.26.2020 20:09	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.26.2020 20:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	154	%	70-130	05.26.2020 20:09	**
1,4-Difluorobenzene	540-36-3	117	%	70-130	05.26.2020 20:09	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-4 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-004	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**881**	25.0	mg/kg	05.27.2020 11:56		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	05.27.2020 03:46	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	05.27.2020 03:46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.27.2020 03:46	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.27.2020 03:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-130	05.27.2020 03:46	
o-Terphenyl	84-15-1	116	%	70-130	05.27.2020 03:46	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS Bottom Hole-4 4"**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-004	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	AMF	Date Prep:	05.26.2020 17:00	Basis:	Wet Weight
Seq Number:	3127056				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.26.2020 20:29	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.26.2020 20:29	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.26.2020 20:29	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.26.2020 20:29	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.26.2020 20:29	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.26.2020 20:29	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.26.2020 20:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	109	%	70-130	05.26.2020 20:29	
1,4-Difluorobenzene	540-36-3	105	%	70-130	05.26.2020 20:29	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS North Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-005	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**240**	4.97	mg/kg	05.27.2020 12:02		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.27.2020 04:05	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.27.2020 04:05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.27.2020 04:05	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.27.2020 04:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-130	05.27.2020 04:05	
o-Terphenyl	84-15-1	108	%	70-130	05.27.2020 04:05	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS North Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-005	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	AMF	Date Prep:	05.26.2020 17:00	Basis:	Wet Weight
Seq Number:	3127056				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.26.2020 20:49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.26.2020 20:49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.26.2020 20:49	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.26.2020 20:49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.26.2020 20:49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.26.2020 20:49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.26.2020 20:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	154	%	70-130	05.26.2020 20:49	**
1,4-Difluorobenzene	540-36-3	115	%	70-130	05.26.2020 20:49	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS South Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-006	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**241**	5.03	mg/kg	05.27.2020 12:22		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	05.27.2020 04:24	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	05.27.2020 04:24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.27.2020 04:24	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.27.2020 04:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-130	05.27.2020 04:24	
o-Terphenyl	84-15-1	104	%	70-130	05.27.2020 04:24	

Certificate of Analytical Results 662580

COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS South Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-006	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	05.27.2020 16:00	Basis:	Wet Weight
Seq Number:	3127167				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.27.2020 17:36	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.27.2020 17:36	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.27.2020 17:36	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	05.27.2020 17:36	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.27.2020 17:36	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.27.2020 17:36	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.27.2020 17:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	05.27.2020 17:36	
1,4-Difluorobenzene	540-36-3	110	%	70-130	05.27.2020 17:36	

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COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS East Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-007	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**242**	5.02	mg/kg	05.27.2020 12:29		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.27.2020 04:44	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.27.2020 04:44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.27.2020 04:44	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.27.2020 04:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-130	05.27.2020 04:44	
o-Terphenyl	84-15-1	101	%	70-130	05.27.2020 04:44	

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COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS East Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-007	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	05.26.2020 16:45	Basis:	Wet Weight
Seq Number:	3127052				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.26.2020 19:14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.26.2020 19:14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.26.2020 19:14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.26.2020 19:14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.26.2020 19:14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.26.2020 19:14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.26.2020 19:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	117	%	70-130	05.26.2020 19:14	
1,4-Difluorobenzene	540-36-3	104	%	70-130	05.26.2020 19:14	

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COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS West Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-008	Date Collected:	05.21.2020 00:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	05.27.2020 10:30	Basis:	Wet Weight
Seq Number:	3127155				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**246**	4.98	mg/kg	05.27.2020 12:56		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	05.26.2020 16:00	Basis:	Wet Weight
Seq Number:	3127085				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<50.0	50.0	mg/kg	05.27.2020 05:03	U	1
Diesel Range Organics	C10C28DRO	<50.0	50.0	mg/kg	05.27.2020 05:03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.27.2020 05:03	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.27.2020 05:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-130	05.27.2020 05:03	
o-Terphenyl	84-15-1	102	%	70-130	05.27.2020 05:03	

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COG Operating LLC, Artesia, NM

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Sample Id:	**CS West Wall**	Matrix:	Soil	Date Received:	05.26.2020 15:26
Lab Sample Id:	662580-008	Date Collected:	05.21.2020 00:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	05.26.2020 16:45	Basis:	Wet Weight
Seq Number:	3127052				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.26.2020 19:34	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.26.2020 19:34	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.26.2020 19:34	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	05.26.2020 19:34	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.26.2020 19:34	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.26.2020 19:34	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.26.2020 19:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	05.26.2020 19:34	
4-Bromofluorobenzene	460-00-4	129	%	70-130	05.26.2020 19:34	

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 662580

COG Operating LLC

Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3127155 Matrix: Solid Date Prep: 05.27.2020
MB Sample Id: 7704177-1-BLK LCS Sample Id: 7704177-1-BKS LCSD Sample Id: 7704177-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	246	98	247	99	90-110	0	20	mg/kg	05.27.2020 11:09	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3127155 Matrix: Soil Date Prep: 05.27.2020
Parent Sample Id: 662580-001 MS Sample Id: 662580-001 S MSD Sample Id: 662580-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	246	252	491	97	491	97	90-110	0	20	mg/kg	05.27.2020 11:29	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3127155 Matrix: Soil Date Prep: 05.27.2020
Parent Sample Id: 662580-008 MS Sample Id: 662580-008 S MSD Sample Id: 662580-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	246	249	490	98	491	98	90-110	0	20	mg/kg	05.27.2020 13:02	

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3127085 Matrix: Solid Date Prep: 05.26.2020
MB Sample Id: 7704087-1-BLK LCS Sample Id: 7704087-1-BKS LCSD Sample Id: 7704087-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	1110	111	1080	108	70-130	3	20	mg/kg	05.26.2020 21:27	
Diesel Range Organics	<50.0	1000	1020	102	997	100	70-130	2	20	mg/kg	05.26.2020 21:27	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		126		127		70-130	%	05.26.2020 21:27
o-Terphenyl	119		119		121		70-130	%	05.26.2020 21:27

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3127085 Matrix: Solid Date Prep: 05.26.2020
MB Sample Id: 7704087-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.26.2020 21:08	

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

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COG Operating LLC

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Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3127085 Matrix: Soil Date Prep: 05.26.2020
Parent Sample Id: 662454-061 MS Sample Id: 662454-061 S MSD Sample Id: 662454-061 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<49.8	996	1060	106	1060	106	70-130	0	20	mg/kg	05.26.2020 22:23	
Diesel Range Organics	213	996	1160	95	1160	95	70-130	0	20	mg/kg	05.26.2020 22:23	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		124		70-130	%	05.26.2020 22:23
o-Terphenyl	112		114		70-130	%	05.26.2020 22:23

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3127052 Matrix: Solid Date Prep: 05.26.2020
MB Sample Id: 7704125-1-BLK LCS Sample Id: 7704125-1-BKS LCSD Sample Id: 7704125-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0917	92	0.0887	89	70-130	3	35	mg/kg	05.26.2020 17:12	
Toluene	<0.00200	0.100	0.103	103	0.100	100	70-130	3	35	mg/kg	05.26.2020 17:12	
Ethylbenzene	<0.00200	0.100	0.102	102	0.100	100	70-130	2	35	mg/kg	05.26.2020 17:12	
m,p-Xylenes	<0.00400	0.200	0.209	105	0.206	103	70-130	1	35	mg/kg	05.26.2020 17:12	
o-Xylene	<0.00200	0.100	0.102	102	0.100	100	70-130	2	35	mg/kg	05.26.2020 17:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		102		100		70-130	%	05.26.2020 17:12
4-Bromofluorobenzene	101		109		110		70-130	%	05.26.2020 17:12

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3127056 Matrix: Solid Date Prep: 05.26.2020
MB Sample Id: 7704127-1-BLK LCS Sample Id: 7704127-1-BKS LCSD Sample Id: 7704127-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0951	95	0.101	101	70-130	6	35	mg/kg	05.26.2020 17:10	
Toluene	<0.00200	0.100	0.106	106	0.111	111	70-130	5	35	mg/kg	05.26.2020 17:10	
Ethylbenzene	<0.00200	0.100	0.115	115	0.121	121	70-130	5	35	mg/kg	05.26.2020 17:10	
m,p-Xylenes	<0.00400	0.200	0.221	111	0.233	117	70-130	5	35	mg/kg	05.26.2020 17:10	
o-Xylene	<0.00200	0.100	0.109	109	0.115	115	70-130	5	35	mg/kg	05.26.2020 17:10	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	88		101		106		70-130	%	05.26.2020 17:10
4-Bromofluorobenzene	103		188	**	196	**	70-130	%	05.26.2020 17:10

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

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Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3127167 Matrix: Solid Date Prep: 05.27.2020
MB Sample Id: 7704216-1-BLK LCS Sample Id: 7704216-1-BKS LCSD Sample Id: 7704216-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.104	104	0.110	110	70-130	6	35	mg/kg	05.27.2020 15:34	
Toluene	<0.00200	0.100	0.101	101	0.107	107	70-130	6	35	mg/kg	05.27.2020 15:34	
Ethylbenzene	<0.00200	0.100	0.0931	93	0.0984	98	70-130	6	35	mg/kg	05.27.2020 15:34	
m,p-Xylenes	<0.00400	0.200	0.187	94	0.198	99	70-130	6	35	mg/kg	05.27.2020 15:34	
o-Xylene	<0.00200	0.100	0.0892	89	0.0944	94	70-130	6	35	mg/kg	05.27.2020 15:34	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		104		107		70-130	%	05.27.2020 15:34
4-Bromofluorobenzene	91		94		99		70-130	%	05.27.2020 15:34

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3127052 Matrix: Soil Date Prep: 05.26.2020
Parent Sample Id: 662580-007 MS Sample Id: 662580-007 S MSD Sample Id: 662580-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0990	0.0810	82	0.0811	81	70-130	0	35	mg/kg	05.26.2020 17:53	
Toluene	<0.00198	0.0990	0.0885	89	0.0883	88	70-130	0	35	mg/kg	05.26.2020 17:53	
Ethylbenzene	<0.00198	0.0990	0.0855	86	0.0854	86	70-130	0	35	mg/kg	05.26.2020 17:53	
m,p-Xylenes	<0.00396	0.198	0.174	88	0.174	87	70-130	0	35	mg/kg	05.26.2020 17:53	
o-Xylene	<0.00198	0.0990	0.0852	86	0.0849	85	70-130	0	35	mg/kg	05.26.2020 17:53	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		104		70-130	%	05.26.2020 17:53
4-Bromofluorobenzene	105		107		70-130	%	05.26.2020 17:53

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3127056 Matrix: Soil Date Prep: 05.26.2020
Parent Sample Id: 662580-001 MS Sample Id: 662580-001 S MSD Sample Id: 662580-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0952	95	0.0855	86	70-130	11	35	mg/kg	05.26.2020 17:50	
Toluene	<0.00200	0.0998	0.106	106	0.0940	95	70-130	12	35	mg/kg	05.26.2020 17:50	
Ethylbenzene	<0.00200	0.0998	0.111	111	0.103	104	70-130	7	35	mg/kg	05.26.2020 17:50	
m,p-Xylenes	<0.00399	0.200	0.214	107	0.192	97	70-130	11	35	mg/kg	05.26.2020 17:50	
o-Xylene	<0.00200	0.0998	0.107	107	0.100	101	70-130	7	35	mg/kg	05.26.2020 17:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	118		115		70-130	%	05.26.2020 17:50
4-Bromofluorobenzene	217	**	200	**	70-130	%	05.26.2020 17:50

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

QC Summary 662580

COG Operating LLC

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Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A

Seq Number: 3127167 Matrix: Soil Date Prep: 05.27.2020

Parent Sample Id: 662580-006 MS Sample Id: 662580-006 S MSD Sample Id: 662580-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0949	95	0.106	106	70-130	11	35	mg/kg	05.27.2020 16:15	
Toluene	<0.00201	0.100	0.0914	91	0.103	103	70-130	12	35	mg/kg	05.27.2020 16:15	
Ethylbenzene	<0.00201	0.100	0.0820	82	0.0926	93	70-130	12	35	mg/kg	05.27.2020 16:15	
m,p-Xylenes	<0.00402	0.201	0.164	82	0.186	93	70-130	13	35	mg/kg	05.27.2020 16:15	
o-Xylene	<0.00201	0.100	0.0793	79	0.0895	90	70-130	12	35	mg/kg	05.27.2020 16:15	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		108		70-130	%	05.27.2020 16:15
4-Bromofluorobenzene	97		102		70-130	%	05.27.2020 16:15

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

Analysis Request of Chain of Custody Record

CONCHO

One Concho
Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

Lab# 675980

Client Name: COG	**Site Manager:** Ike Tavarez itavarez@concho.com Robert Grubbs Jr rgrubbs@concho.com
Project Name: Blue Thunder 5 Federal 6H (05/28/18) 2RP-4795	
Project Location: (county, state) Eddy County, NM	**Project #:**
Invoice to: COG	
Receiving Laboratory: Xenco	**Sampler Signature:** Robert Grubbs Jr
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX: WATER	MATRIX: SOIL	MATRIX:	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD:	PRESERVATIVE METHOD:	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	EC Electrical Conductivity			Hold
	CS Bottom Hole - 1 4"	5/21/2020			X				X			1		X		X												X							
	CS Bottom Hole - 2 4"	5/21/2020			X				X			1		X		X												X							
	CS Bottom Hole - 3 4"	5/21/2020			X				X			1		X		X												X							
	CS Bottom Hole - 4 4"	5/21/2020			X				X			1		X		X												X							
	CS North Wall	5/21/2020			X				X			1		X		X												X							
	CS South Wall	5/21/2020			X				X			1		X		X												X							
	CS East Wall	5/21/2020			X				X			1		X		X												X							
	CS West Wall	5/21/2020			X				X			1		X		X												X							

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	5-26-20	15:24			
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY
Sample Temperature
5.6 5.3
-0.3

REMARKS:

X	RUSH: Same Day 24 hr **48 hr** 72 hr
	Rush Charges Authorized
	Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

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Final 1.000

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 05.26.2020 03.26.00 PM

Work Order #: 662580

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R9

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	5.3	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	BTEX was in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**N/A**	
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 05.26.2020
Brianna Teel

Checklist reviewed by: Holly Taylor Date: 05.27.2020
Holly Taylor