SITE INFORMATION

Report Type: Work Plan 2RP 5561

General Site Information:						
Site:	**Rocket Federal Com #5H**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit B**	**Sec. 10**	**T 26S**	**R 29E**		
Lease Number:						
County:	**Eddy County**					
GPS:	**32.06408**			**-103.96908**		
Surface Owner:	**Federal**					
Mineral Owner:						
Directions:	From the intersection of US 285 and Longhorn Rd, travel east on Longhorn Rd for 4.3 miles, turn northeast onto Pipeline Rd for 1.75 miles to location along the lease road.					

Release Data:	
Date Released:	7/10/2019
Type Release:	Produced Water
Source of Contamination:	Flowline
Fluid Released:	320 bbls
Fluids Recovered:	300 bbls

Official Communication:			
Name:	Ike Tavarez		Clair Gonzales
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	itavarez@concho.com		Clair.Gonzales@tetratech.com

Site Characterization	
Depth to Groundwater:	*120'*
Karst Potential:	*Medium*
Surface Water:	*145' from USGS Blue Dotted Line*

Recommended Remedial Action Levels (RRALs)			
Benzene	***Total BTEX***	***TPH (GRO+DRO+MRO)***	***Chlorides***
10 mg/kg	*50 mg/kg*	*100 mg/kg*	*600 mg/kg*

TETRA TECH

April 7, 2020

Mr. Mike Bratcher
District Supervisor
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Work Plan for the COG Operating, LLC, Rocket Fed Com #5H, Unit B, Section 10, Township 26 South, Range 29 East, Eddy County, New Mexico (2RP 5561).

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG), to assess a release that occurred at the Rocket Fed Com #5H, Unit B, Section 10, Township 26 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.06408°, -103.96908°. 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 July 10, 2019, and released approximately 320 barrels of produced water due to a damaged flowline. A vacuum truck was dispatched to remove all freestanding fluids, recovering approximately 300 barrels of produced water. The release occurred along Pipeline Rd impacting areas measuring 643' x 51'. The initial C-141 form is included in Appendix A.

Site Characterization

A site characterization was performed for the site, and no lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. However, the site is located in a medium karst potential area. Additionally, the release occurred within 300' of a water course, as defined as a blue dotted line on the USGS quadrangle map. No water wells were listed within Section 10 on the New Mexico Office of the State Engineer's (NMOSE) database, the Geology and Groundwater Resources of Eddy County (Report 3), or the USGS National Water Information Database. The nearest well is listed in Section 16 on the USGS Water Information Database, approximately 1.20 miles southeast of the site, and has a reported depth to groundwater of 120' 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, updated August 14, 2018. 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. A site characterization was performed for the site and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. Additionally, the site is located in a low karst potential area. 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 site characterization, the proposed RRAL for TPH is 100 mg/kg (GRO + DRO + MRO). Additionally, based on the site characterization, the proposed RRAL for chlorides is 600 mg/kg.

Soil Assessment and Analytical Results

Initial Assessment

On August 26, 2019, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of five auger holes (AH-1 through AH-5) were installed in the release footprint to total depths of 0-1' below surface. Deeper samples could not be collected due to a dense formation in the area. Additionally, five horizontal delineation samples were collected (East 1 Horizonal, West 1 Horizontal, South 1 Horizontal, South 2 Horizontal, and South 3 Horizontal). Soil samples were collected and submitted to the laboratory 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 results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Referring to Table 1, none of the samples collected showed benzene, total BTEX, or TPH concentrations above the laboratory reporting limits. Additionally, all of the horizontal delineation samples showed chloride concentrations below the RRAL, with concentrations ranging from 15.4 mg/kg to 69.5 mg/kg. However, the areas of AH-1 through AH-5 showed elevated chloride concentrations in the shallow soils, with concentrations of 10,300 mg/kg, 14,800 mg/kg, 7,600 mg/kg, 12,400 mg/kg, and 5,380 mg/kg at 0-1' below surface, respectively.

Boreholes

Based on the laboratory data, Tetra Tech personnel returned to the site on October 17th, 2019, in order to vertically define the chloride concentrations in the areas of AH-1 through AH-5. A total of five boreholes (Borehole #1 through Borehole #5) were installed in the areas of AH-1 through AH-5 to total depths ranging from 9'-10' and 19'-20' below surface using a truck mounted air rotary drilling rig. Soil samples were collected and submitted to the laboratory 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 results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Referring to Table 1, none of the samples analyzed for benzene, total BTEX, or TPH showed concentrations above the laboratory reporting limits.

The area of BH-1 did not show any significant chloride concentrations to the soils, with chloride concentrations ranging from <10.01 mg/kg (2'-3') to 111 mg/kg (6'-7'). The area of BH-2 showed elevated chlorides in the shallow soils, with a chloride high of 6,650 mg/kg at 2'-3', which then declined with depth to 36.3 mg/kg at 4'-5' and showed a bottom hole concentration of 74.0 mg/kg at 9'-10' below surface.

The areas of BH-3 and BH-5 showed minimal chloride concentrations in the shallow soils. However, the chloride concentrations spiked to chloride highs of 1,720 mg/kg and 6,400 mg/kg at 6'-7', respectively. The chloride concentrations in these areas then declined with depth to below the RRAL at 9'-10' below surface. The area of BH-4 showed elevated chloride concentrations in the shallow soils that decreased to 363 mg/kg at 4'-5' before increasing to 7,340 mg/kg at 6'-7' below surface. The chloride concentrations then steadily declined with depth and showed a bottom hole concentration of 619 mg/kg at 19'-20' below surface.

Work Plan

Based on the laboratory results, COG proposes to remove the chloride impacted soils, as shown on Figure 4 and highlighted (green) on Table 1.

- The areas of BH-1 and BH-2 will be excavated to approximately 1.0' and 3.0' below surface, respectively.

- The area of BH-4 and BH-5 will be excavated to 4.0' below surface and capped with a 20-mil liner to prevent further vertical migration of the deeper impacts.

- Prior to remediation, the area of BH-3 will re-assessed to confirm the chloride spike encountered at 6.0'-7.0' of 1,720 mg/kg. The samples above and below 6-7' were below regulatory limits.

  If confirmed, the shallow material (0-4') will be excavated, segregated and sampled every 50 cubic yards to confirm chloride concentrations are below regulatory levels for re-use. The area of BH-3 will then be capped with a 20-mil liner. If no impact is confirmed, the area will not be excavated.

TETRA TECH

Safety Concerns - Pipelines

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

Sampling Plan

Five-point composite bottom and sidewall confirmation samples will be collected every 400 square feet in order to ensure proper removal of the impacted areas.

Liner Variance

Per rule 19.15.29.14, COG requests a variance to install a 20-mil liner at 4.0' below surface in to prevent vertical migration of the deeper chloride concentrations detected. Prior to the liner installation, composite sidewall samples will be collected every 400 square feet and analyzed for chlorides by EPA method 300.0, to be representative of the release area, for documentation purposes.

Once completed, the excavated areas will then be backfilled with clean material to surface grade. All the excavated material will be transported offsite for proper disposal. COG estimates approximately 4,663 cubic yards will be excavated and will be implemented within ninety (90) days of the work plan being approved.

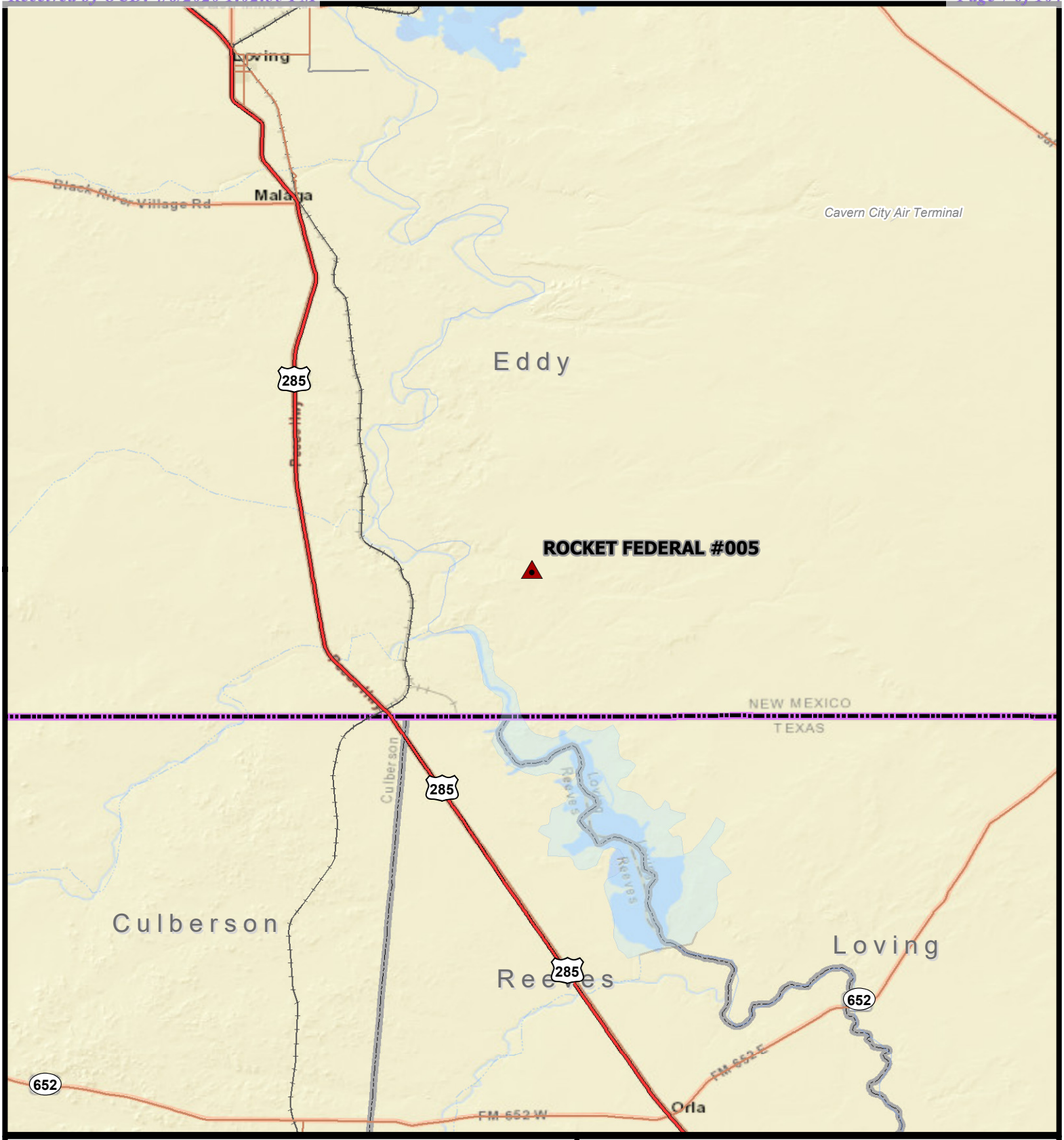
Conclusion

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

Mike Carmona
Geologist

Figures



SITE LOCATION

N
W E
S

0 10,416.5 20,833

Approximate Scale in Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

STATE LOCATOR MAP

OVERVIEW MAP
ROCKET FEDERAL #005
Property Located at coordinates 32.064798°,-103.969330°
EDDY COUNTY, NEW MEXICO

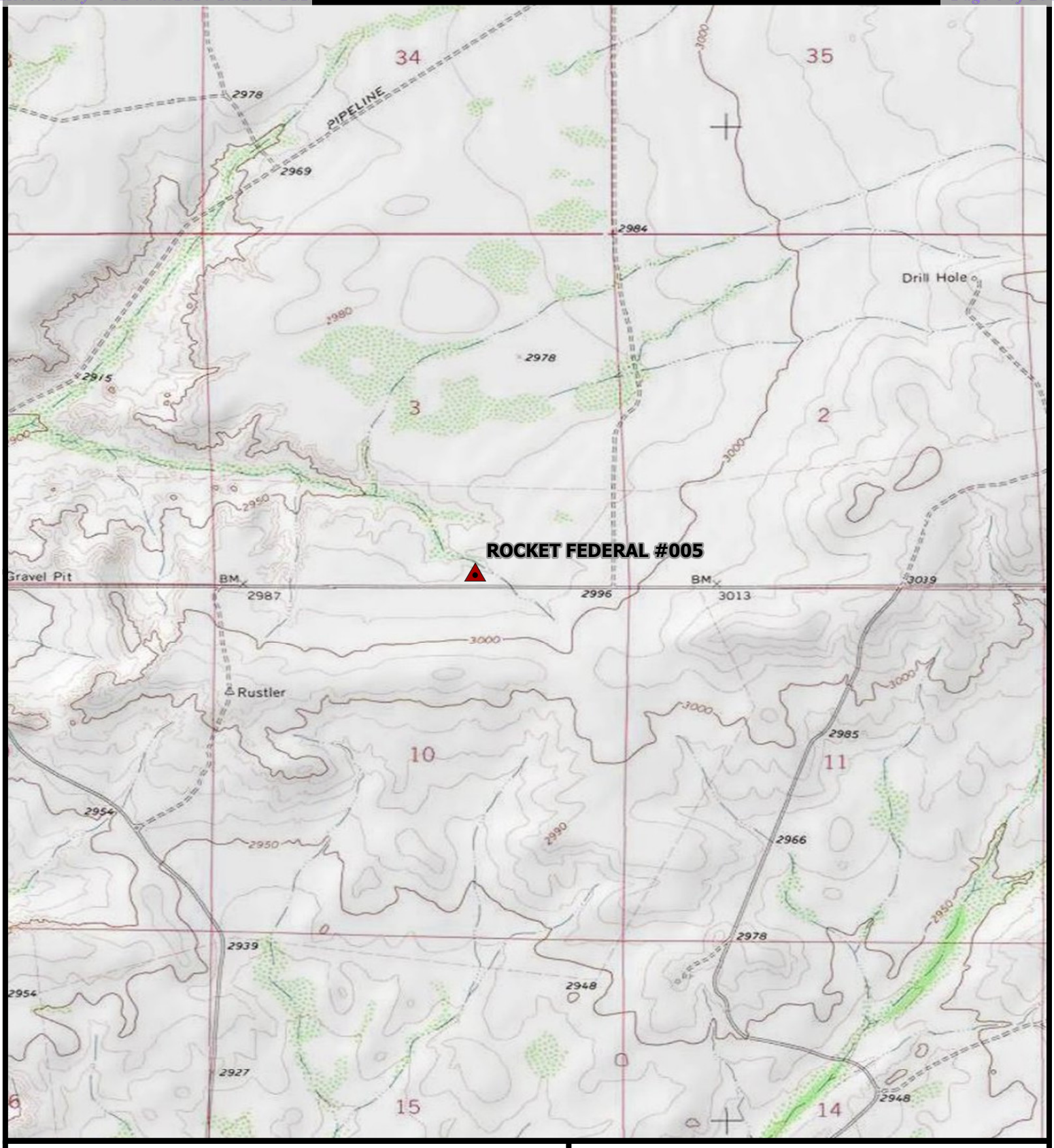
CONCHO

TETRA TECH
901 W Wall St Ste. 100,
Midland, TX 79701
(432) 682-4559

Project #: 212C-MD-001901
Date: 01-09-2020
Drawn By: MLM

FIGURE 1

Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01901 ROCKET FEDERAL 5H\MXD\212C-MD-01901 ROCKET FEDERAL 5H FIG. 1.mxd



SITE LOCATION

N
W E
S

0 1,000 2,000
Approximate Scale in Feet

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

TOPOGRAPHIC MAP
ROCKET FEDERAL #005
Property Located at coordinates 32.064798°,-103.969330°
EDDY COUNTY, NEW MEXICO

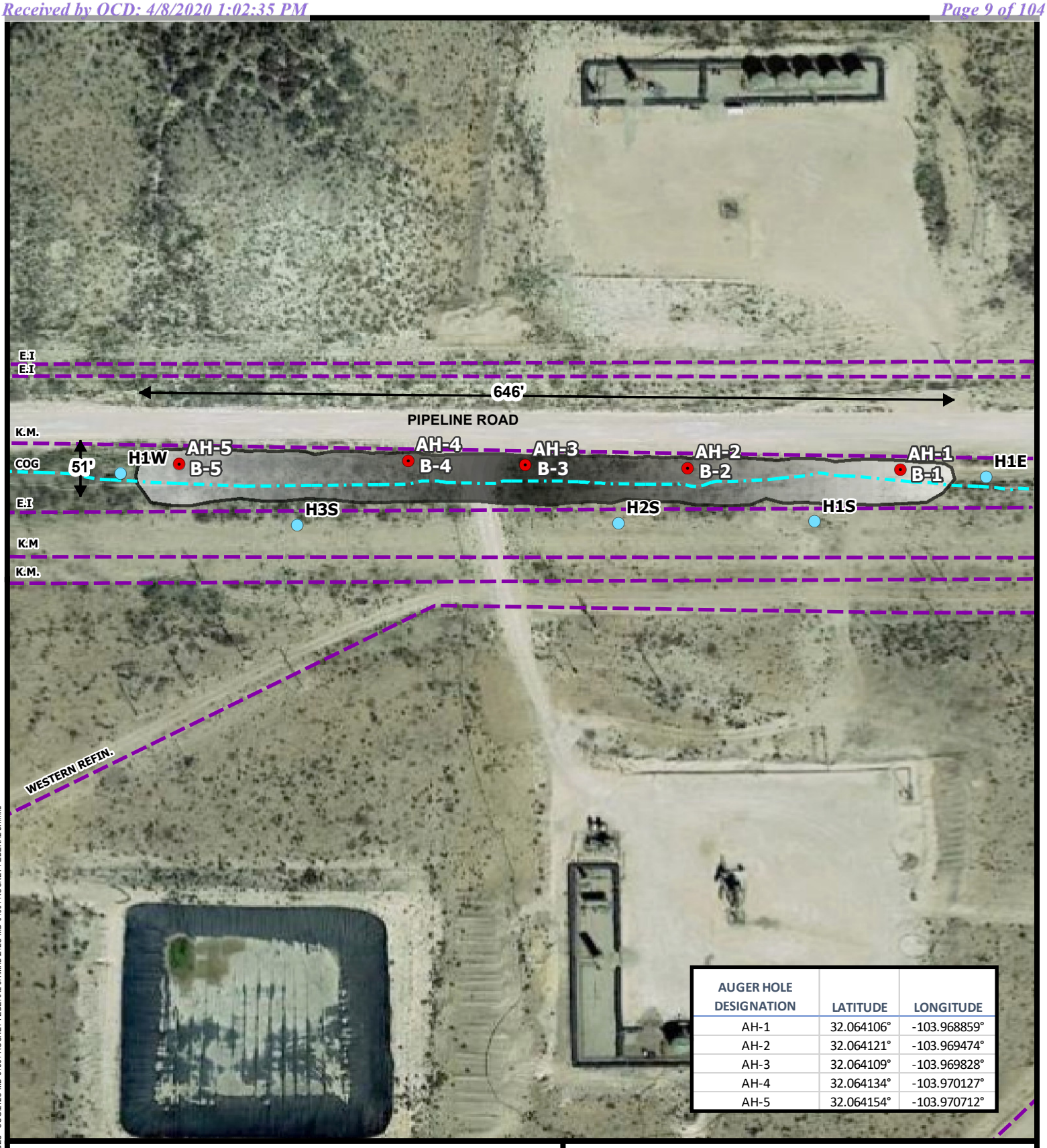
CONCHO

TETRA TECH
901 W Wall St Ste. 100,
Midland, TX 79701
(432) 682-4559

Project #: 212C-MD-001901
Date: 01-09-2020
Drawn By: MLM

FIGURE
2

Date: 1/9/2020 Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01901 ROCKET FEDERAL 5H\MXD\212C-MD-01901 ROCKET FEDERAL 5H FIG. 2.mxd



AUGER HOLE DESIGNATION	LATITUDE	LONGITUDE
AH-1	32.064106°	-103.968859°
AH-2	32.064121°	-103.969474°
AH-3	32.064109°	-103.969828°
AH-4	32.064134°	-103.970127°
AH-5	32.064154°	-103.970712°

B- BORE HOLE

AUGER HOLE SAMPLE POINTS

HORIZONTAL SOIL SAMPLE LOCATIONS

BURIED PIPELINE

FLOWLINE

AFFECTED SPILL AREA

N
W E
S

0 60 120

Approximate Scale in Feet

Source: "New Mexico". 32° 3'53.27"N, 103°58'9.59"W. **Google Earth**. February 2019.January 9, 2020.

SPILL ASSESSMENT MAP
ROCKET FEDERAL #005
Property Located at coordinates 32.064798°,-103.969330°
EDDY COUNTY, NEW MEXICO

CONCHO

TETRA TECH
901 W Wall St Ste. 100,
Midland, TX 79701
(432) 682-4559

Project #: 212C-MD-001901
Date: 01-09-2020
Drawn By: MLM

FIGURE 3

Date: 4/7/2020 Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01901 ROCKET FEDERAL 5H\MXD\212C-MD-01901 ROCKET FEDERAL 5H.mxd

BURIED PIPELINE

FLOWLINE

1.0' PROPOSED EXCAVATION AREA

3.0' PROPOSED EXCAVATION AREA

4.0' PROPOSED EXCAVATION AREA w/ LINER

N
W E
S

0 60 120

Approximate Scale in Feet

Source: "New Mexico". 32° 3'53.27"N, 103°58'9.59"W. **Google Earth**. February 2019.January 9, 2020.

PROPOSED EXCAVATION AREA & DEPTH MAP
ROCKET FEDERAL #005
Property Located at coordinates 32.064798°,-103.969330°
EDDY COUNTY, NEW MEXICO

CONCHO

TETRA TECH
901 W Wall St Ste. 100,
Midland, TX 79701
(432) 682-4559

Project #: 212C-MD-001901
Date: 02-12-2020
Drawn By: MLM

FIGURE 4

Date: 4/7/2020 Document Path: H:\GIS\CONCHO RESOURCES - COG\212C-MD-01901 ROCKET FEDERAL 5H\MXD\212C-MD-01901 ROCKET FEDERAL 5H FIG 4.mxd

Tables

Table 1
COG
Rocket Fed Com #5H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB 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	GRO	DRO	GRO + DRO	ORO	Total						
AH-1	8/26/2019	0-1	-	X		<50.1	<50.1	<50.1	<50.1	<50.1	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**10,300**
Borehole #1	10/17/2019	0-1	-	X		<50.2	<50.2	<50.2	<50.2	<50.2	<0.00101	<0.00101	<0.00101	<0.00101	<0.00101	26.5
	"	2-3	-	X		-	-	-	-	-	-	-	-	-	-	<10.1
	"	4-5	-	X		-	-	-	-	-	-	-	-	-	-	22.0
	"	6-7	-	X		-	-	-	-	-	-	-	-	-	-	111
	"	9-10	-	X		-	-	-	-	-	-	-	-	-	-	24.5
AH-2	8/26/2019	0-1	-	X		<50.1	<50.1	<50.1	<50.1	<50.1	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**14,800**
Borehole #2	10/17/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.000998	<0.000998	<0.000998	<0.000998	<0.000998	**2,150**
	"	2-3	-	X		-	-	-	-	-	-	-	-	-	-	**6,650**
	"	4-5	-	X		-	-	-	-	-	-	-	-	-	-	36.3
	"	6-7	-	X		-	-	-	-	-	-	-	-	-	-	297
	"	9-10	-	X		-	-	-	-	-	-	-	-	-	-	74.0
AH-3	8/26/2019	0-1	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**7,600**
Borehole #3 (Re-evaluate)	10/17/2019	0-1	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00101	<0.00101	<0.00101	<0.00101	<0.00101	32.2
	"	2-3	-	X		-	-	-	-	-	-	-	-	-	-	64.5
	"	4-5	-	X		-	-	-	-	-	-	-	-	-	-	414
	"	6-7	-	X		-	-	-	-	-	-	-	-	-	-	**1,720**
	"	9-10	-	X		-	-	-	-	-	-	-	-	-	-	161
	"	14-15	-	X		-	-	-	-	-	-	-	-	-	-	128
AH-4	8/26/2019	0-1	-	X		<50.1	<50.1	<50.1	<50.1	<50.1	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**12,400**
Borehole #4	10/17/2019	0-1	-	X		<49.8	<49.8	<49.8	<49.8	<49.8	<0.000998	<0.000998	<0.000998	<0.000998	<0.000998	**1,020**
	"	2-3	-	X		-	-	-	-	-	-	-	-	-	-	**1,920**
	"	4-5	-	X		-	-	-	-	-	-	-	-	-	-	363
	"	6-7	-	X		-	-	-	-	-	-	-	-	-	-	**7,340**
	"	9-10	-	X		-	-	-	-	-	-	-	-	-	-	**1,320**
	"	14-15	-	X		-	-	-	-	-	-	-	-	-	-	**752**
	"	19-20	-	X		-	-	-	-	-	-	-	-	-	-	619
AH-5	8/26/2019	0-1	-	X		<50.2	<50.2	<50.2	<50.2	<50.2	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**5,380**
Borehole #5	10/17/2019	0-1	-	X		<50.3	<50.3	<50.3	<50.3	<50.3	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	102
	"	2-3	-	X		-	-	-	-	-	-	-	-	-		146
	"	4-5	-	X		-	-	-	-	-	-	-	-	-	-	**3,780**
	"	6-7	-	X		-	-	-	-	-	-	-	-	-	-	**6,400**
	"	9-10	-	X		-	-	-	-	-	-	-	-	-	-	202
	"	14-15	-	X		-	-	-	-	-	-	-	-	-	-	209
East 1 Horizontal	8/26/2019	0-1	-	X		<50.1	<50.1	<50.1	<50.1	<50.1	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	32.4
West 1 Horizontal	8/26/2019	0.5	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	69.5
South 1 Horizontal	8/26/2019	0.5	-	X		<50.1	<50.1	<50.1	<50.1	<50.1	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	15.4
South 2 Horizontal	8/26/2019	0.5	-	X		<50.2	<50.2	<50.2	<50.2	<50.2	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	31.0
South 3 Horizontal	8/26/2019	0.5	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	16.5

(-) Not Analyzed

Liner

Prposed Excavation

Photos

COG Operating LLC
Rocket Fed Com #5H
Eddy County, New Mexico

TETRA TECH

View West – Area of AH-1

View East – Area of AH-2

COG Operating LLC
Rocket Fed Com #5H
Eddy County, New Mexico

TETRA TECH

View East – Area of AH-3

View South – Area of AH-4

COG Operating LLC
Rocket Fed Com #5H
Eddy County, New Mexico

TETRA TECH

View West – Area of AH-5

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 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	(575) 748-1570
Contact email	JKnowlton@concho.com	Incident # *(assigned by OCD)*	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.06408 Longitude -103.96908
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Rocket Federal Com #005H	Site Type	Flowline
Date Release Discovered	July 10, 2019	API# *(if applicable)*	

Unit Letter	Section	Township	Range	County
B	10	26S	29E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

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)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 320	Volume Recovered (bbls) 300
	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

The release was caused by a ruptured flowline due to damage. The flowline is being repaired. The release was in the pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will evaluate the site to determine if we may commence remediation immediately or 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.

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? The volume released was greater than 25 barrels.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Immediate notice was given by DeAnn Grant via e-mail July 10, 2019 at 4:57 pm to Mike Bratcher and Jim Amos.

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: DeAnn Grant Title: HSE Administrative Assistant

Signature: DeAnn Grant Date: 7/11/2019

email: agrant@concho.com Telephone: (432) 253-4513

OCD Only

Received by: _____ Date: _____

****** LIQUID SPILLS - VOLUME CALCULATIONS ******

Location of spill: Rocket Federal Com #005H **Date of Spill:** 10-Jul-2019

If the leak/spill is associated with production equipment, i.e. - wellhead, stuffing box, flowline, tank battery, production vessel, transfer pump, or storage tank **place an "X" here:** X

Input Data:

	OIL:	WATER:
If spill volumes from measurement, i.e. metering, tank volumes, etc. are known enter the volumes here:	0.0 BBL	0.0 BBL

If "known" spill volumes are given, input data for the following "Area Calculations" is optional. The above will override the calculated volumes.

Total Area Calculations

Total Surface Area	width		length		wet soil depth	oil (%)
Rectangle Area #1	49 ft	X	1,175 ft	X	0.25 in	0%
Rectangle Area #2	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #3	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #4	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #5	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #6	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #7	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #8	0 ft	X	0 ft	X	0 in	0%

Standing Liquid Calculations

Standing Liquid Area	width		length		liquid depth	oil (%)
Rectangle Area #1	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #2	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #3	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #4	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #5	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #6	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #7	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #8	0 ft	X	0 ft	X	0 in	0%

okay

production system leak - DAILY PRODUCTION DATA REQUIRED

Average Daily Production: Oil 0 BBL Water 0 BBL 0 Gas (MCFD)

Total Hydrocarbon Content in gas: 0% (percentage)

Did leak occur before the separator?: YES N/A *(place an "X")*

H2S Content in Produced Gas: 0 PPM

H2S Content in Tank Vapors: 0 PPM

Amount of Free Liquid Recovered: 0 BBL okay

Percentage of Oil in Free Liquid Recovered: 0% (percentage)

Liquid holding factor *: 0.14 gal per gal

Use the following when the spill wets the grains of the soil.
* Sand = **0.08** gallon (gal.) liquid per gal. volume of soil.
* Gravelly (caliche) loam = **0.14** gal. liquid per gal. volume of soil.
* Sandy clay loam soil = **0.14** gal liquid per gal. volume of soil.
* Clay loam = **0.16** gal. liquid per gal. volume of soil.

Use the following when the liquid completely fills the pore space of the soil:
Occurs when the spill soaked soil is contained by barriers, natural (or not).
* Clay loam = **0.20** gal. liquid per gal. volume of soil.
* Gravelly (caliche) loam = **0.25** gal. liquid per gal. volume of soil.
* Sandy loam = **0.5** gal. liquid per gal. volume of soil.

Total Solid/Liquid Volume: **57,575 sq. ft.** **1,199 cu. ft.** **cu. ft.**

Total Free Liquid Volume: **sq. ft.** **cu. ft.** **cu. ft.**

Estimated Volumes Spilled

	H2O	OIL
Liquid in Soil:	29.9 BBL	0.0 BBL
Free Liquid:	0.0 BBL	0.0 BBL
Totals:	**29.9 BBL**	**0.0 BBL**
Total Liquid Spill Liquid:	**29.9 BBL**	**0.00 BBL**

Estimated Production Volumes Lost

	H2O	OIL
Estimated Production Spilled:	**0.0** BBL	**0.0** BBL

Estimated Surface Damage

Surface Area: 57,575 sq. ft.

Surface Area: 1.3217 acre

Recovered Volumes

Estimated oil recovered: **BBL** check - okay

Estimated water recovered: **BBL** check - okay

Estimated Weights, and Volumes

Saturated Soil = 134,342 lbs 1,199 cu. ft. 44 cu. yds.

Total Liquid = 30 BBL 1,256 gallon 10,451 lbs

Air Emission from flowline leaks:

Volume of oil spill:	-	BBL
Separator gas calculated:	-	MCF
Separator gas released:	-	MCF
Gas released from oil:	-	lb
H2S released:	-	lb
Total HC gas released:	-	lb
Total HC gas released:	-	MCF

Air Emission of Reporting Requirements:

	New Mexico	Texas
HC gas release reportable?	**NO**	**NO**
H2S release reportable?	**NO**	**NO**

State of New Mexico
Oil Conservation Division

Incident ID	NAB1922033443
District RP	
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?	120 (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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NAB1922033443
District RP	
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: Ike Tavarez Title: Sr HSE Supervisor

Signature: Date: 4/7/2020

email: itavarez@concho.com Telephone: 432 701-8630

OCD Only

Received by: Cristina Eads Date: 04/08/2020

State of New Mexico
Oil Conservation Division

Incident ID	NAB1922033443
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☑ Detailed description of proposed remediation technique
- ☑ Scaled sitemap with GPS coordinates showing delineation points
- ☑ Estimated volume of material to be remediated
- ☑ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☑ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

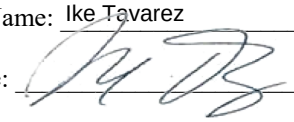
☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Ike Tavarez Title: Sr HSE Supervisor

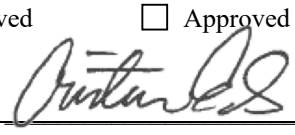
Signature:  Date: 4/7/2020

email: itavarez@concho.com Telephone: 432 701-8630

OCD Only

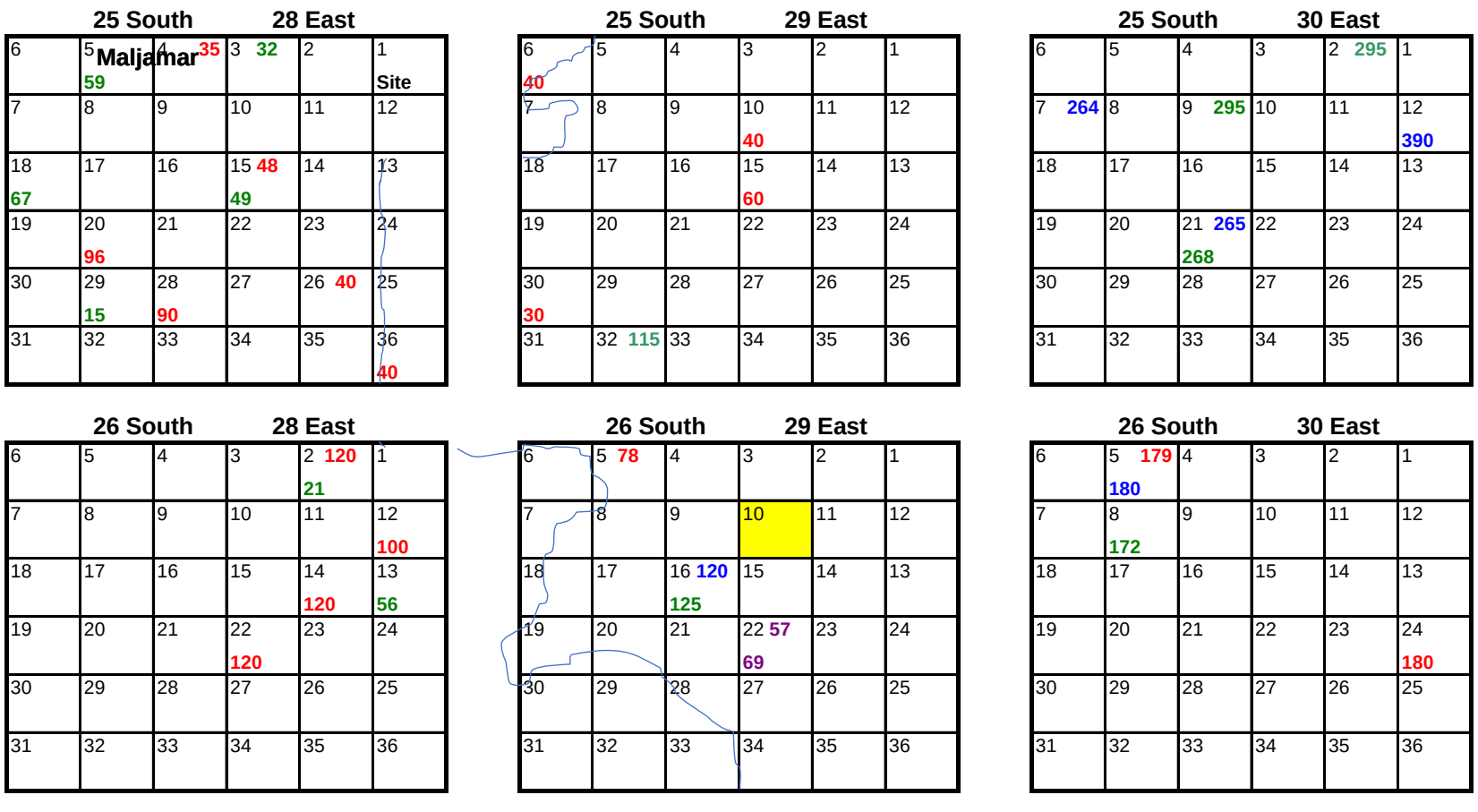
Received by: Cristina Eads Date: 04/08/2020

☐ Approved ☐ Approved with Attached Conditions of Approval ☒ Denied ☐ Deferral Approved

Signature:  Date: 05/19/2020

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Rocket Fed Com #5H
Eddy County, New Mexico



88	New Mexico State Engineers Well Reports
105	USGS Well Reports
90	Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
	Geology and Groundwater Resources of Eddy County, NM (Report 3)
34	NMOCD - Groundwater Data
123	Tetra Tech installed temporary wells and field water level
143	NMOCD Groundwater map well location

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
C 01354 X-3	CUB	ED	2	1	3	23	26S	29E	598323	3543837	170		
C 02038	C	ED	3	2	4	26	26S	29E	599204	3541992*	200		
C 03507 POD1	C	ED	1	3	3	05	26S	29E	593064	3548313	140	78	62
C 03508 POD1	C	ED	1	3	3	05	26S	29E	593063	3548361	140	75	65
C 03605 POD1	CUB	ED	4	2	3	27	26S	29E	596990	3541983	45	0	45

Average Depth to Water: **51 feet**

Minimum Depth: **0 feet**

Maximum Depth: **78 feet**

Record Count: 5

PLSS Search:

Township: 26S **Range:** 29E

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

USGS science for a changing world

National Water Information System: Mapper

Site Information

National Water Information System: Web Interface

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 320301103572201

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

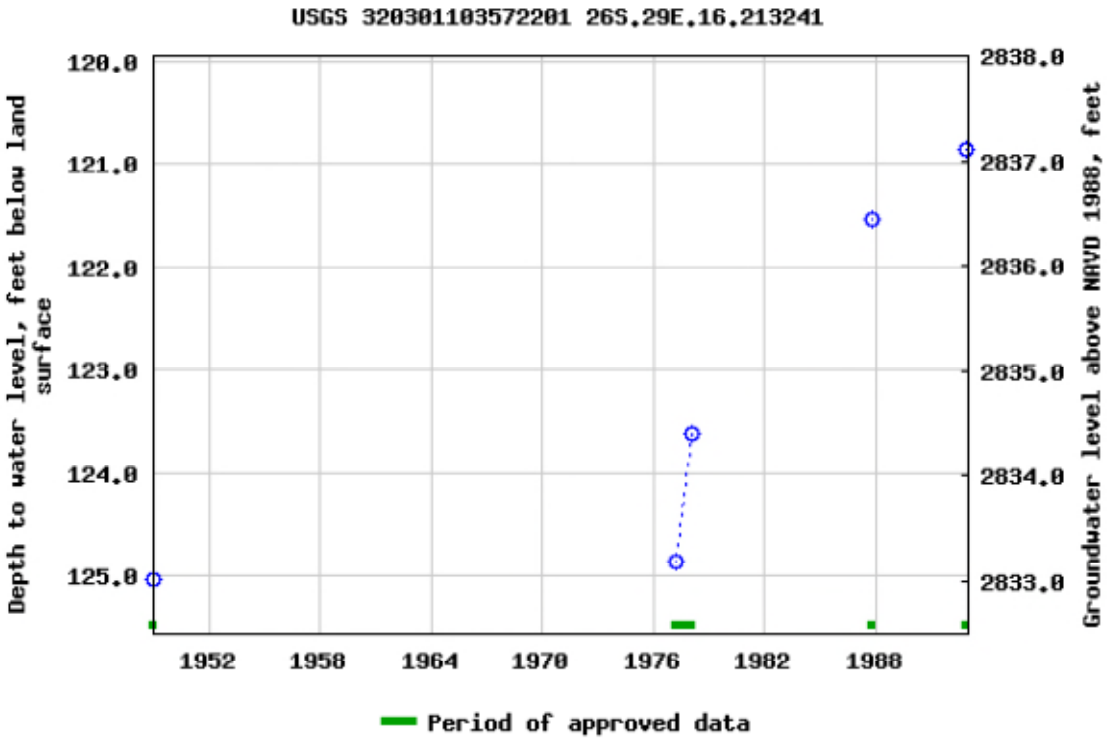
USGS 320301103572201 26S.29E.16.213241

Available data for this site Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code 13070001
Latitude 32°03'01", Longitude 103°57'22" NAD27
Land-surface elevation 2,958 feet above NAVD88
The depth of the well is 335 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2019-10-31 14:59:25 EDT
0.62 0.53 nadww01

COG Rocket Fed Com #5H

Karst Potential Map

Legend

- High
- Low
- Medium
- Site

Rocket Federal #005

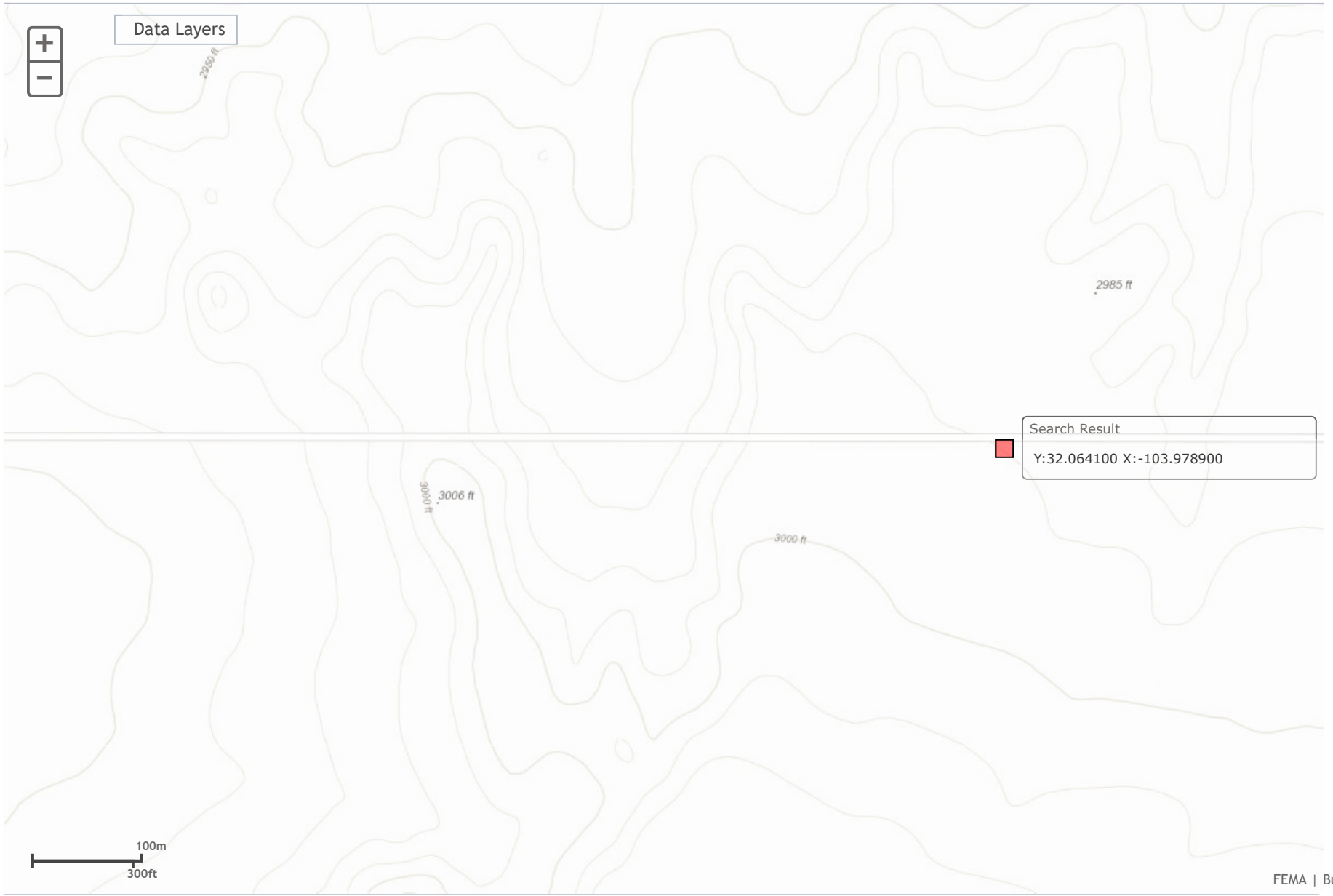
32 03 01 -103 57 22

N

1 mi

Google Earth

NFHL Web Mapping Application



Appendix C

Analytical Report 635141

for

Tetra Tech- Midland

Project Manager: Mike Carmona

Rocket Fed (7.10.19)

29-AUG-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

29-AUG-19

Project Manager: **Mike Carmona**
Tetra Tech- Midland
901 West Wall ST
Midland, TX 79701

Reference: XENCO Report No(s): **635141**
Rocket Fed (7.10.19)
Project Address: Eddy Co, NM

Mike Carmona:

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) 635141. 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. 635141 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,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 635141

Tetra Tech- Midland, Midland, TX

Rocket Fed (7.10.19)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-1')	S	08-26-19 00:00	0 - 1 ft	635141-001
AH #2 (0-1')	S	08-26-19 00:00	0 - 1 ft	635141-002
AH #3 (0-1')	S	08-26-19 00:00	0 - 1 ft	635141-003
AH #4 (0-1')	S	08-26-19 00:00	0 - 1 ft	635141-004
AH #5 (0-1')	S	08-26-19 00:00	0 - 1 ft	635141-005
East 1 Horizontal	S	08-26-19 00:00	ft	635141-006
West 1 Horizontal	S	08-26-19 00:00	ft	635141-007
South 1 Horizontal	S	08-26-19 00:00	ft	635141-008
South 2 Horizontal	S	08-26-19 00:00	ft	635141-009
South 3 Horizontal	S	08-26-19 00:00	ft	635141-010

CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: Rocket Fed (7.10.19)

Project ID:
Work Order Number(s): *635141*

Report Date: *29-AUG-19*
Date Received: *08/26/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3100006 BTEX by EPA 8021B

Lab Sample ID 635141-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Benzene, Ethylbenzene, Toluene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 635141-001, -002, -003, -004, -005, -006, -007, -008, -009, -010.

The Laboratory Control Sample for Toluene, m,p-Xylenes, Benzene, o-Xylene, Ethylbenzene is within laboratory Control Limits, therefore the data was accepted.

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

Certificate of Analysis Summary 635141

Tetra Tech- Midland, Midland, TX

Project Name: Rocket Fed (7.10.19)

Project Id:
Contact: Mike Carmona
Project Location: Eddy Co, NM

Date Received in Lab: Mon Aug-26-19 03:30 pm
Report Date: 29-AUG-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	635141-001		635141-002		635141-003		635141-004		635141-005		635141-006	
	Field Id:	AH #1 (0-1')		AH #2 (0-1')		AH #3 (0-1')		AH #4 (0-1')		AH #5 (0-1')		East 1 Horizontal	
	Depth:	0-1 ft		0-1 ft		0-1 ft		0-1 ft		0-1 ft			
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Aug-26-19 00:00		Aug-26-19 00:00		Aug-26-19 00:00		Aug-26-19 00:00		Aug-26-19 00:00		Aug-26-19 00:00	
BTEX by EPA 8021B SUB: T104704400-18-16	***Extracted:***	Aug-27-19 16:30		Aug-27-19 16:30		Aug-27-19 16:30		Aug-27-19 16:30		Aug-27-19 16:30		Aug-27-19 16:30	
	Analyzed:	Aug-28-19 12:10		Aug-28-19 12:30		Aug-28-19 12:51		Aug-28-19 13:11		Aug-28-19 13:31		Aug-28-19 13:51	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Toluene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
m,p-Xylenes		<0.00399	0.00399	<0.00398	0.00398	<0.00400	0.00400	<0.00399	0.00399	<0.00398	0.00398	<0.00399	0.00399
o-Xylene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200
Chloride by EPA 300 SUB: T104704400-18-16	***Extracted:***	Aug-27-19 14:30		Aug-27-19 14:30		Aug-27-19 14:30		Aug-27-19 14:30		Aug-27-19 14:50		Aug-27-19 14:50	
	Analyzed:	Aug-27-19 20:35		Aug-27-19 20:41		Aug-27-19 20:47		Aug-27-19 20:54		Aug-27-19 21:51		Aug-27-19 21:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		10300	49.8	14800	101	7600	50.0	12400	100	5380	49.6	32.4	4.98
TPH by SW8015 Mod SUB: T104704400-18-16	***Extracted:***	Aug-27-19 14:08		Aug-27-19 14:08		Aug-27-19 14:08		Aug-27-19 14:08		Aug-27-19 14:08		Aug-27-19 14:08	
	Analyzed:	Aug-27-19 20:36		Aug-27-19 21:34		Aug-27-19 21:54		Aug-27-19 22:13		Aug-27-19 22:33		Aug-27-19 22:52	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.1	50.1	<50.1	50.1	<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.1	50.1
Diesel Range Organics (DRO)		<50.1	50.1	<50.1	50.1	<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.1	50.1
Motor Oil Range Hydrocarbons (MRO)		<50.1	50.1	<50.1	50.1	<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.1	50.1
Total TPH		<50.1	50.1	<50.1	50.1	<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.1	50.1

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 635141

Tetra Tech- Midland, Midland, TX

Project Name: Rocket Fed (7.10.19)

Project Id:
Contact: Mike Carmona
Project Location: Eddy Co, NM

Date Received in Lab: Mon Aug-26-19 03:30 pm
Report Date: 29-AUG-19
Project Manager: Jessica Kramer

Analysis Requested															
	Lab Id:	635141-007		635141-008		635141-009		635141-010							
	Field Id:	West 1 Horizontal		South 1 Horizontal		South 2 Horizontal		South 3 Horizontal							
	Depth:														
	Matrix:	SOIL		SOIL		SOIL		SOIL							
	Sampled:	Aug-26-19 00:00		Aug-26-19 00:00		Aug-26-19 00:00		Aug-26-19 00:00							
BTEX by EPA 8021B SUB: T104704400-18-16	***Extracted:***	Aug-27-19 16:30		Aug-27-19 16:30		Aug-27-19 16:30		Aug-27-19 16:30							
	Analyzed:	Aug-28-19 14:11		Aug-28-19 14:31		Aug-28-19 14:51		Aug-28-19 16:10							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200						
Toluene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200						
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200						
m,p-Xylenes		<0.00401	0.00401	<0.00398	0.00398	<0.00399	0.00399	<0.00400	0.00400						
o-Xylene		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200						
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200						
Total BTEX		<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200						
Chloride by EPA 300 SUB: T104704400-18-16	***Extracted:***	Aug-27-19 14:50		Aug-27-19 14:50		Aug-27-19 14:50		Aug-27-19 14:50							
	Analyzed:	Aug-27-19 21:57		Aug-27-19 22:03		Aug-27-19 22:10		Aug-27-19 22:28							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Chloride		69.5	5.02	15.4	5.00	31.0	4.99	16.5	5.01						
TPH by SW8015 Mod SUB: T104704400-18-16	***Extracted:***	Aug-27-19 14:08		Aug-27-19 14:08		Aug-27-19 14:08		Aug-27-19 14:08							
	Analyzed:	Aug-27-19 23:12		Aug-27-19 23:31		Aug-27-19 23:51		Aug-28-19 00:10							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.0	50.0						
Diesel Range Organics (DRO)		<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.0	50.0						
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.0	50.0						
Total TPH		<50.0	50.0	<50.1	50.1	<50.2	50.2	<50.0	50.0						

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

Jessica Kramer
Project Assistant

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: Rocket Fed (7.10.19)

Work Orders : 635141,

Project ID:

Lab Batch #: 3099899 **Sample:** 635141-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 20:36

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.3	100	96	70-135	
o-Terphenyl	47.8	50.1	95	70-135	

Lab Batch #: 3099899 **Sample:** 635141-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 21:34

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.8	100	97	70-135	
o-Terphenyl	46.8	50.1	93	70-135	

Lab Batch #: 3099899 **Sample:** 635141-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 21:54

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	51.2	50.0	102	70-135	

Lab Batch #: 3099899 **Sample:** 635141-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 22:13

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.0	100	97	70-135	
o-Terphenyl	48.1	50.1	96	70-135	

Lab Batch #: 3099899 **Sample:** 635141-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 22:33

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.6	100	95	70-135	
o-Terphenyl	46.3	50.2	92	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Rocket Fed (7.10.19)

Work Orders : 635141,

Project ID:

Lab Batch #: 3099899 **Sample:** 635141-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 22:52

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.0	100	93	70-135	
o-Terphenyl	44.6	50.1	89	70-135	

Lab Batch #: 3099899 **Sample:** 635141-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 23:12

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.5	100	93	70-135	
o-Terphenyl	45.9	50.0	92	70-135	

Lab Batch #: 3099899 **Sample:** 635141-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 23:31

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.1	100	92	70-135	
o-Terphenyl	41.0	50.1	82	70-135	

Lab Batch #: 3099899 **Sample:** 635141-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 23:51

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	100	100	70-135	
o-Terphenyl	44.7	50.2	89	70-135	

Lab Batch #: 3099899 **Sample:** 635141-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 00:10

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	100	109	70-135	
o-Terphenyl	52.8	50.0	106	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Rocket Fed (7.10.19)

Work Orders : 635141,

Project ID:

Lab Batch #: 3100006 **Sample:** 635141-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 12:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	70-130	
4-Bromofluorobenzene	0.0327	0.0300	109	70-130	

Lab Batch #: 3100006 **Sample:** 635141-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 12:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	70-130	
4-Bromofluorobenzene	0.0337	0.0300	112	70-130	

Lab Batch #: 3100006 **Sample:** 635141-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 12:51

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	70-130	
4-Bromofluorobenzene	0.0317	0.0300	106	70-130	

Lab Batch #: 3100006 **Sample:** 635141-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 13:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	70-130	
4-Bromofluorobenzene	0.0309	0.0300	103	70-130	

Lab Batch #: 3100006 **Sample:** 635141-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 13:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	70-130	
4-Bromofluorobenzene	0.0324	0.0300	108	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Rocket Fed (7.10.19)

Work Orders : 635141,

Project ID:

Lab Batch #: 3100006 **Sample:** 635141-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 13:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	70-130	
4-Bromofluorobenzene	0.0319	0.0300	106	70-130	

Lab Batch #: 3100006 **Sample:** 635141-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 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	0.0299	0.0300	100	70-130	
4-Bromofluorobenzene	0.0305	0.0300	102	70-130	

Lab Batch #: 3100006 **Sample:** 635141-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 14:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	70-130	
4-Bromofluorobenzene	0.0316	0.0300	105	70-130	

Lab Batch #: 3100006 **Sample:** 635141-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 14:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	70-130	
4-Bromofluorobenzene	0.0311	0.0300	104	70-130	

Lab Batch #: 3100006 **Sample:** 635141-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 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	0.0246	0.0300	82	70-130	
4-Bromofluorobenzene	0.0294	0.0300	98	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Rocket Fed (7.10.19)

Work Orders : 635141,

Project ID:

Lab Batch #: 3099899 **Sample:** 7685087-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/27/19 19:38

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	100	100	100	70-135	
o-Terphenyl	51.4	50.0	103	70-135	

Lab Batch #: 3100006 **Sample:** 7685107-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/28/19 11:30

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	70-130	
4-Bromofluorobenzene	0.0297	0.0300	99	70-130	

Lab Batch #: 3099899 **Sample:** 7685087-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/27/19 19:57

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	100	127	70-135	
o-Terphenyl	62.4	50.0	125	70-135	

Lab Batch #: 3100006 **Sample:** 7685107-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/28/19 09:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	70-130	
4-Bromofluorobenzene	0.0338	0.0300	113	70-130	

Lab Batch #: 3099899 **Sample:** 7685087-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/27/19 20:17

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	100	127	70-135	
o-Terphenyl	59.8	50.0	120	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Rocket Fed (7.10.19)

Work Orders : 635141,

Project ID:

Lab Batch #: 3100006 **Sample:** 7685107-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/28/19 10:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	70-130	
4-Bromofluorobenzene	0.0340	0.0300	113	70-130	

Lab Batch #: 3099899 **Sample:** 635141-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 20:55

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	112	100	112	70-135	
o-Terphenyl	50.3	50.2	100	70-135	

Lab Batch #: 3100006 **Sample:** 635141-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 10:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	70-130	
4-Bromofluorobenzene	0.0346	0.0300	115	70-130	

Lab Batch #: 3099899 **Sample:** 635141-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/27/19 21:15

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	100	113	70-135	
o-Terphenyl	48.8	50.2	97	70-135	

Lab Batch #: 3100006 **Sample:** 635141-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/28/19 10:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	70-130	
4-Bromofluorobenzene	0.0348	0.0300	116	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.

BS / BSD Recoveries

Project Name: Rocket Fed (7.10.19)

Work Order #: 635141 **Project ID:**

Analyst: KTL **Date Prepared:** 08/27/2019 **Date Analyzed:** 08/28/2019

Lab Batch ID: 3100006 **Sample:** 7685107-1-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	0.0922	92	0.100	0.0990	99	7	70-130	35	
Toluene	<0.000456	0.100	0.0949	95	0.100	0.102	102	7	70-130	35	
Ethylbenzene	<0.00200	0.100	0.104	104	0.100	0.112	112	7	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.203	102	0.200	0.219	110	8	70-130	35	
o-Xylene	<0.00200	0.100	0.106	106	0.100	0.114	114	7	70-130	35	

Analyst: CHE **Date Prepared:** 08/27/2019 **Date Analyzed:** 08/27/2019

Lab Batch ID: 3099840 **Sample:** 7685085-1-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	243	97	250	243	97	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

BS / BSD Recoveries

Project Name: Rocket Fed (7.10.19)

Work Order #: 635141 **Project ID:**

Analyst: CHE **Date Prepared:** 08/27/2019 **Date Analyzed:** 08/27/2019

Lab Batch ID: 3099842 **Sample:** 7685086-1-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	247	99	250	245	98	1	90-110	20	

Analyst: ARM **Date Prepared:** 08/27/2019 **Date Analyzed:** 08/27/2019

Lab Batch ID: 3099899 **Sample:** 7685087-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod 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
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	985	99	1000	1010	101	3	70-135	20	
Diesel Range Organics (DRO)	<25.0	1000	1010	101	1000	1050	105	4	70-135	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

Form 3 - MS / MSD Recoveries

Project Name: Rocket Fed (7.10.19)

Work Order # : 635141 **Project ID:**

Lab Batch ID: 3100006 **QC- Sample ID:** 635141-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/28/2019 **Date Prepared:** 08/27/2019 **Analyst:** KTL

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	<0.00198	0.0992	0.0734	74	0.101	0.0688	68	6	70-130	35	X
Toluene	<0.00198	0.0992	0.0733	74	0.101	0.0675	67	8	70-130	35	X
Ethylbenzene	<0.00198	0.0992	0.0706	71	0.101	0.0624	62	12	70-130	35	X
m,p-Xylenes	<0.00397	0.198	0.133	67	0.202	0.117	58	13	70-130	35	X
o-Xylene	<0.00198	0.0992	0.0680	69	0.101	0.0598	59	13	70-130	35	X

Lab Batch ID: 3099840 **QC- Sample ID:** 635135-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/27/2019 **Date Prepared:** 08/27/2019 **Analyst:** CHE

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	608	253	830	88	253	829	87	0	90-110	20	X

Lab Batch ID: 3099840 **QC- Sample ID:** 635219-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/27/2019 **Date Prepared:** 08/27/2019 **Analyst:** CHE

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	13.2	252	291	110	252	290	110	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: Rocket Fed (7.10.19)

Work Order # : 635141 **Project ID:**

Lab Batch ID: 3099842 **QC- Sample ID:** 633489-017 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/27/2019 **Date Prepared:** 08/27/2019 **Analyst:** CHE

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	957	250	1160	81	250	1160	81	0	90-110	20	X

Lab Batch ID: 3099842 **QC- Sample ID:** 635141-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/27/2019 **Date Prepared:** 08/27/2019 **Analyst:** CHE

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	32.4	249	278	99	249	277	98	0	90-110	20	

Lab Batch ID: 3099899 **QC- Sample ID:** 635141-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/27/2019 **Date Prepared:** 08/27/2019 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod 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
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	953	95	1000	945	95	1	70-135	20	
Diesel Range Organics (DRO)	<25.1	1000	868	87	1000	862	86	1	70-135	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.

635141

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

901W Wall Street, Ste 100
Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: Concho	**Site Manager:** Mike Camona
Project Name: Rocket Fed 5 (7.10.19)	
Project Location: (county, state) Eddy Co, NM	**Project #:** Pending
Invoice to: COG - Ike Taverez	
Receiving Laboratory: Xenco	**Sampler Signature:** Conner Moehring
Comments:	

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2019 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - 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	Hold
	AH #1 (0-1')	8/26/2019			X			X		1	N	X		X												X			
	AH #2 (0-1')	8/26/2019			X			X		1	N	X		X												X			
	AH #3 (0-1')	8/26/2019			X			X		1	N	X		X												X			
	AH #4 (0-1')	8/26/2019			X			X		1	N	X		X												X			
	AH #5 (0-1')	8/26/2019			X			X		1	N	X		X												X			
	East 1 Horizontal	8/26/2019			X			X		1	N	X		X												X			
	West 1 Horizontal	8/26/2019			X			X		1	N	X		X												X			
	South 1 Horizontal	8/26/2019			X			X		1	N	X		X												X			
	South 2 Horizontal	8/26/2019			X			X		1	N	X		X												X			
	South 3 Horizontal	8/26/2019			X			X		1	N	X		X												X			

Relinquished by: Conner Moehring	Date: 8/26/19	Time: 1530	Received by:
Relinquished by:	Date:	Time:	Received by: 8/26/19 15:30
Relinquished by:	Date:	Time:	Received by:
			Received by:

LAB USE ONLY

Sample Temperature

REMARKS:

- ☐ STANDARD
- ☒ RUSH: Same Day 24 hr 48 hr (72 hr)
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

ORIGINAL COPY

Inter-Office Shipment

IOS Number **46940**

Date/Time: 08/26/19 17:51
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.:

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
635141-001	S	AH #1 (0-1')	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-001	S	AH #1 (0-1')	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-001	S	AH #1 (0-1')	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-002	S	AH #2 (0-1')	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-002	S	AH #2 (0-1')	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-002	S	AH #2 (0-1')	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-003	S	AH #3 (0-1')	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-003	S	AH #3 (0-1')	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-003	S	AH #3 (0-1')	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-004	S	AH #4 (0-1')	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-004	S	AH #4 (0-1')	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-004	S	AH #4 (0-1')	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-005	S	AH #5 (0-1')	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-005	S	AH #5 (0-1')	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-005	S	AH #5 (0-1')	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-006	S	East 1 Horizontal	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-006	S	East 1 Horizontal	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-006	S	East 1 Horizontal	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-007	S	West 1 Horizontal	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-007	S	West 1 Horizontal	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-007	S	West 1 Horizontal	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-008	S	South 1 Horizontal	08/26/19 00:00	E300_CL	Chloride by EPA 300	08/28/19	02/22/20	JKR	CL	
635141-008	S	South 1 Horizontal	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	08/28/19	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-008	S	South 1 Horizontal	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	
635141-009	S	South 2 Horizontal	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	08/28/19	09/09/19	JKR	PHCC10C28 PHCC28C35	

Inter-Office Shipment

IOS Number **46940**

Date/Time: 08/26/19 17:51
Lab# From: **Carlsbad**
Lab# To: **Midland**

Created by: Elizabeth Mcclellan
Delivery Priority:
Air Bill No.:

Please send report to: Jessica Kramer
Address: 1089 N Canal Street
E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
635141-009	S	South 2 Horizontal	08/26/19 00:00	E300_CL	Chloride by EPA 300	**08/28/19**	02/22/20	JKR	CL	
635141-009	S	South 2 Horizontal	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	**08/28/19**	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-010	S	South 3 Horizontal	08/26/19 00:00	SW8021B	BTEX by EPA 8021B	**08/28/19**	09/09/19	JKR	BR4FBZ BZ BZME EBZ X	
635141-010	S	South 3 Horizontal	08/26/19 00:00	E300_CL	Chloride by EPA 300	**08/28/19**	02/22/20	JKR	CL	
635141-010	S	South 3 Horizontal	08/26/19 00:00	SW8015MOD_NM	TPH by SW8015 Mod	**08/28/19**	09/09/19	JKR	PHCC10C28 PHCC28C35	

Inter Office Shipment or Sample Comments:

Relinquished By: Elizabeth McClellan

Date Relinquished: 08/26/2019

Received By: Brianna Teel

Date Received: 08/27/2019 14:08

Cooler Temperature:

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 46940

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : R8

Sent By: Elizabeth McClellan **Date Sent:** 08/26/2019 05:51 PM

Received By: Brianna Teel **Date Received:** 08/27/2019 02:08 PM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?		
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**	
#5 *Custody Seals Signed and dated for Containers/coolers	**Yes**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: Brianna Teel Date: 08/27/2019

Brianna Teel

Analytical Report 640368

for

Tetra Tech- Midland

Project Manager: Mike Carmona

COG - Rocket Fed Com 5H (7.10/19)

212C-MD-01901

22-OCT-19

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)

Certificate of Analysis Summary 640368

Tetra Tech- Midland, Midland, TX

Project Name: COG - Rocket Fed Com 5H (7.10/19)

Project Id: 212C-MD-01901
Contact: Mike Carmona
Project Location: Eddy Co, NM

Date Received in Lab: Thu Oct-17-19 04:35 pm
Report Date: 22-OCT-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	640368-001		640368-002		640368-003		640368-004		640368-005		640368-006	
	Field Id:	Borehole #1 (0-1')		Borehole #1 (2-3')		Borehole #1 (4-5')		Borehole #1 (6-7')		Borehole #1 (9-10')		Borehole #2 (0-1')	
	Depth:	0-1 ft		2-3 ft		4-5 ft		6-7 ft		9-10 ft		0-1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00	
BTEX by EPA 8021B	***Extracted:***	Oct-17-19 17:10										Oct-17-19 17:10	
	Analyzed:	Oct-18-19 10:16										Oct-18-19 10:35	
	Units/RL:	mg/kg	RL									mg/kg	RL
Benzene		<0.00101	0.00101									<0.000998	0.000998
Toluene		<0.00101	0.00101									<0.000998	0.000998
Ethylbenzene		<0.00101	0.00101									<0.000998	0.000998
m,p-Xylenes		<0.00202	0.00202									<0.00200	0.00200
o-Xylene		<0.00101	0.00101									<0.000998	0.000998
Total Xylenes		<0.00101	0.00101									<0.000998	0.000998
Total BTEX		<0.00101	0.00101									<0.000998	0.000998
Chloride by EPA 300	***Extracted:***	Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10	
	Analyzed:	Oct-18-19 15:15		Oct-18-19 15:34		Oct-18-19 15:40		Oct-18-19 15:47		Oct-18-19 15:53		Oct-18-19 15:59	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		26.5	10.0	<10.1	10.1	22.0	10.1	111	99.4	24.5	9.98	2150	198
TPH by SW8015 Mod	***Extracted:***	** ** ** **										** ** ** **	
	Analyzed:	Oct-18-19 05:27										Oct-18-19 05:46	
	Units/RL:	mg/kg	RL									mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.2	50.2									<50.0	50.0
Diesel Range Organics (DRO)		<50.2	50.2									<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.2	50.2									<50.0	50.0
Total TPH		<50.2	50.2									<50.0	50.0

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

Version: 1.%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 640368

Tetra Tech- Midland, Midland, TX

Project Name: COG - Rocket Fed Com 5H (7.10/19)

Project Id: 212C-MD-01901
Contact: Mike Carmona
Project Location: Eddy Co, NM

Date Received in Lab: Thu Oct-17-19 04:35 pm
Report Date: 22-OCT-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	640368-007		640368-008		640368-009		640368-010		640368-011		640368-012	
	Field Id:	Borehole #2 (2-3')		Borehole #2 (4-5')		Borehole #2 (6-7')		Borehole #2 (9-10')		Borehole #3 (0-1')		Borehole #3 (2-3')	
	Depth:	2-3 ft		4-5 ft		6-7 ft		9-10 ft		0-1 ft		2-3 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00	
BTEX by EPA 8021B	***Extracted:***									Oct-17-19 17:10			
	Analyzed:									Oct-18-19 10:55			
	Units/RL:									mg/kg	RL		
Benzene										<0.00101	0.00101		
Toluene										<0.00101	0.00101		
Ethylbenzene										<0.00101	0.00101		
m,p-Xylenes										<0.00202	0.00202		
o-Xylene										<0.00101	0.00101		
Total Xylenes										<0.00101	0.00101		
Total BTEX										<0.00101	0.00101		
Chloride by EPA 300	***Extracted:***	Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10	
	Analyzed:	Oct-18-19 16:05		Oct-18-19 16:12		Oct-18-19 16:30		Oct-18-19 16:37		Oct-18-19 16:43		Oct-18-19 17:02	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		6650	202	36.3	10.1	297	199	74.0	10.1	32.2	10.1	64.5	9.96
TPH by SW8015 Mod	***Extracted:***									** ** ** **			
	Analyzed:									Oct-18-19 06:06			
	Units/RL:									mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)										<49.9	49.9		
Diesel Range Organics (DRO)										<49.9	49.9		
Motor Oil Range Hydrocarbons (MRO)										<49.9	49.9		
Total TPH										<49.9	49.9		

Version: 1.%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 640368

Tetra Tech- Midland, Midland, TX

Project Name: COG - Rocket Fed Com 5H (7.10/19)

Project Id: 212C-MD-01901
Contact: Mike Carmona
Project Location: Eddy Co, NM

Date Received in Lab: Thu Oct-17-19 04:35 pm
Report Date: 22-OCT-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	640368-013		640368-014		640368-015		640368-016		640368-017		640368-018	
	Field Id:	Borehole #3 (4-5')		Borehole #3 (6-7')		Borehole #3 (9-10')		Borehole #3 (14-15')		Borehole #4 (0-1')		Borehole #4 (2-3')	
	Depth:	4-5 ft		6-7 ft		9-10 ft		14-15 ft		0-1 ft		2-3 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00	
BTEX by EPA 8021B	***Extracted:***									Oct-17-19 17:10			
	Analyzed:									Oct-18-19 11:15			
	Units/RL:									mg/kg	RL		
Benzene										<0.000998	0.000998		
Toluene										<0.000998	0.000998		
Ethylbenzene										<0.000998	0.000998		
m,p-Xylenes										<0.00200	0.00200		
o-Xylene										<0.000998	0.000998		
Total Xylenes										<0.000998	0.000998		
Total BTEX										<0.000998	0.000998		
Chloride by EPA 300	***Extracted:***	Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10		Oct-18-19 14:10	
	Analyzed:	Oct-18-19 17:08		Oct-18-19 17:14		Oct-18-19 17:21		Oct-18-19 17:27		Oct-18-19 17:46		Oct-18-19 17:52	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		414	49.4	1720	100	161	10.1	128	10.1	1020	10.1	1920	100
TPH by SW8015 Mod	***Extracted:***									** ** ** **			
	Analyzed:									Oct-18-19 06:26			
	Units/RL:									mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)										<49.8	49.8		
Diesel Range Organics (DRO)										<49.8	49.8		
Motor Oil Range Hydrocarbons (MRO)										<49.8	49.8		
Total TPH										<49.8	49.8		

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

Version: 1.%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 640368

Tetra Tech- Midland, Midland, TX

Project Name: COG - Rocket Fed Com 5H (7.10/19)

Project Id: 212C-MD-01901
Contact: Mike Carmona
Project Location: Eddy Co, NM

Date Received in Lab: Thu Oct-17-19 04:35 pm
Report Date: 22-OCT-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	640368-019		640368-020		640368-021		640368-022		640368-023		640368-024	
	Field Id:	Borehole #4 (4-5')		Borehole #4 (6-7')		Borehole #4 (9-10')		Borehole #4 (14-15')		Borehole #4 (19-20')		Borehole #5 (0-1')	
	Depth:	4-5 ft		6-7 ft		9-10 ft		14-15 ft		19-20 ft		0-1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00	
BTEX by EPA 8021B	***Extracted:***											Oct-17-19 17:10	
	Analyzed:											Oct-18-19 12:18	
	Units/RL:											mg/kg	RL
Benzene												<0.00100	0.00100
Toluene												<0.00100	0.00100
Ethylbenzene												<0.00100	0.00100
m,p-Xylenes												<0.00200	0.00200
o-Xylene												<0.00100	0.00100
Total Xylenes												<0.00100	0.00100
Total BTEX												<0.00100	0.00100
Chloride by EPA 300	***Extracted:***	Oct-18-19 14:10		Oct-18-19 17:10		Oct-18-19 17:10		Oct-18-19 17:10		Oct-18-19 17:10		Oct-18-19 17:10	
	Analyzed:	Oct-18-19 17:58		Oct-18-19 18:44		Oct-18-19 19:04		Oct-18-19 19:11		Oct-18-19 19:17		Oct-18-19 19:24	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		363	50.0	7340	200	1320	100	752	49.8	619	49.8	102	9.88
TPH by SW8015 Mod	***Extracted:***											** ** ** **	
	Analyzed:											Oct-18-19 07:05	
	Units/RL:											mg/kg	RL
Gasoline Range Hydrocarbons (GRO)												<50.3	50.3
Diesel Range Organics (DRO)												<50.3	50.3
Motor Oil Range Hydrocarbons (MRO)												<50.3	50.3
Total TPH												<50.3	50.3

Version: 1.%

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 640368

Tetra Tech- Midland, Midland, TX

Project Name: COG - Rocket Fed Com 5H (7.10/19)

Project Id: 212C-MD-01901
Contact: Mike Carmona
Project Location: Eddy Co, NM

Date Received in Lab: Thu Oct-17-19 04:35 pm
Report Date: 22-OCT-19
Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	640368-025		640368-026		640368-027		640368-028		640368-029	
	Field Id:	Borehole #5 (2-3')		Borehole #5 (4-5')		Borehole #5 (6-7')		Borehole #5 (9-10')		Borehole #5 (14-15')	
	Depth:	2-3 ft		4-5 ft		6-7 ft		9-10 ft		14-15 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00		Oct-17-19 00:00	
Chloride by EPA 300	***Extracted:***	Oct-18-19 17:10		Oct-18-19 17:10		Oct-18-19 17:10		Oct-18-19 17:10		Oct-18-19 17:10	
	Analyzed:	Oct-18-19 19:31		Oct-18-19 19:51		Oct-18-19 19:58		Oct-18-19 20:04		Oct-18-19 20:11	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		146	9.92	3780	100	6400	202	202 D	10.1	209	200

Version: 1.%

Jessica Kramer
Project Assistant

22-OCT-19

Project Manager: **Mike Carmona**
Tetra Tech- Midland
901 West Wall ST
Midland, TX 79701

Reference: XENCO Report No(s): **640368**
COG - Rocket Fed Com 5H (7.10/19)
Project Address: Eddy Co, NM

Mike Carmona:

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) 640368. 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. 640368 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,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Borehole #1 (0-1')	S	10-17-19 00:00	0 - 1 ft	640368-001
Borehole #1 (2-3')	S	10-17-19 00:00	2 - 3 ft	640368-002
Borehole #1 (4-5')	S	10-17-19 00:00	4 - 5 ft	640368-003
Borehole #1 (6-7')	S	10-17-19 00:00	6 - 7 ft	640368-004
Borehole #1 (9-10')	S	10-17-19 00:00	9 - 10 ft	640368-005
Borehole #2 (0-1')	S	10-17-19 00:00	0 - 1 ft	640368-006
Borehole #2 (2-3')	S	10-17-19 00:00	2 - 3 ft	640368-007
Borehole #2 (4-5')	S	10-17-19 00:00	4 - 5 ft	640368-008
Borehole #2 (6-7')	S	10-17-19 00:00	6 - 7 ft	640368-009
Borehole #2 (9-10')	S	10-17-19 00:00	9 - 10 ft	640368-010
Borehole #3 (0-1')	S	10-17-19 00:00	0 - 1 ft	640368-011
Borehole #3 (2-3')	S	10-17-19 00:00	2 - 3 ft	640368-012
Borehole #3 (4-5')	S	10-17-19 00:00	4 - 5 ft	640368-013
Borehole #3 (6-7')	S	10-17-19 00:00	6 - 7 ft	640368-014
Borehole #3 (9-10')	S	10-17-19 00:00	9 - 10 ft	640368-015
Borehole #3 (14-15')	S	10-17-19 00:00	14 - 15 ft	640368-016
Borehole #4 (0-1')	S	10-17-19 00:00	0 - 1 ft	640368-017
Borehole #4 (2-3')	S	10-17-19 00:00	2 - 3 ft	640368-018
Borehole #4 (4-5')	S	10-17-19 00:00	4 - 5 ft	640368-019
Borehole #4 (6-7')	S	10-17-19 00:00	6 - 7 ft	640368-020
Borehole #4 (9-10')	S	10-17-19 00:00	9 - 10 ft	640368-021
Borehole #4 (14-15')	S	10-17-19 00:00	14 - 15 ft	640368-022
Borehole #4 (19-20')	S	10-17-19 00:00	19 - 20 ft	640368-023
Borehole #5 (0-1')	S	10-17-19 00:00	0 - 1 ft	640368-024
Borehole #5 (2-3')	S	10-17-19 00:00	2 - 3 ft	640368-025
Borehole #5 (4-5')	S	10-17-19 00:00	4 - 5 ft	640368-026
Borehole #5 (6-7')	S	10-17-19 00:00	6 - 7 ft	640368-027
Borehole #5 (9-10')	S	10-17-19 00:00	9 - 10 ft	640368-028
Borehole #5 (14-15')	S	10-17-19 00:00	14 - 15 ft	640368-029

CASE NARRATIVE

Client Name: Tetra Tech- Midland

Project Name: COG - Rocket Fed Com 5H (7.10/19)

Project ID: *212C-MD-01901*
Work Order Number(s): *640368*

Report Date: *22-OCT-19*
Date Received: *10/17/2019*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3104782 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3104897 Chloride by EPA 300
Lab Sample ID 640369-002 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: 640368-020, -021, -022, -023, -024, -025, -026, -027, -028, -029.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #1 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-001	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**26.5**	10.0	mg/kg	10.18.19 15.15		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	10.17.19 16.30	Basis:	Wet Weight
Seq Number:	3104747				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	10.18.19 05.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	10.18.19 05.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	10.18.19 05.27	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	10.18.19 05.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-135	10.18.19 05.27	
o-Terphenyl	84-15-1	112	%	70-135	10.18.19 05.27	

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #1 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-001	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.17.19 17.10	Basis:	Wet Weight
Seq Number:	3104782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00101	0.00101	mg/kg	10.18.19 10.16	U	1
Toluene	108-88-3	<0.00101	0.00101	mg/kg	10.18.19 10.16	U	1
Ethylbenzene	100-41-4	<0.00101	0.00101	mg/kg	10.18.19 10.16	U	1
m,p-Xylenes	179601-23-1	<0.00202	0.00202	mg/kg	10.18.19 10.16	U	1
o-Xylene	95-47-6	<0.00101	0.00101	mg/kg	10.18.19 10.16	U	1
Total Xylenes	1330-20-7	<0.00101	0.00101	mg/kg	10.18.19 10.16	U	1
Total BTEX		<0.00101	0.00101	mg/kg	10.18.19 10.16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	114	%	70-130	10.18.19 10.16	
1,4-Difluorobenzene	540-36-3	94	%	70-130	10.18.19 10.16	

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #1 (2-3')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-002	Date Collected:	10.17.19 00.00	Sample Depth:	2 - 3 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	10.18.19 21.53		1

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #1 (4-5')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-003	Date Collected:	10.17.19 00.00	Sample Depth:	4 - 5 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**22.0**	10.1	mg/kg	10.18.19 15.40		1

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #1 (6-7')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-004	Date Collected:	10.17.19 00.00	Sample Depth:	6 - 7 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**111**	99.4	mg/kg	10.18.19 15.47		10

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #1 (9-10')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-005	Date Collected:	10.17.19 00.00	Sample Depth:	9 - 10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.5**	9.98	mg/kg	10.18.19 22.07		1

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #2 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-006	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2150**	198	mg/kg	10.18.19 22.14		20

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	10.17.19 16.30	Basis:	Wet Weight
Seq Number:	3104747				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.18.19 05.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.18.19 05.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.18.19 05.46	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.18.19 05.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.18.19 05.46	
o-Terphenyl	84-15-1	96	%	70-135	10.18.19 05.46	

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #2 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-006	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.17.19 17.10	Basis:	Wet Weight
Seq Number:	3104782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000998	0.000998	mg/kg	10.18.19 10.35	U	1
Toluene	108-88-3	<0.000998	0.000998	mg/kg	10.18.19 10.35	U	1
Ethylbenzene	100-41-4	<0.000998	0.000998	mg/kg	10.18.19 10.35	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	10.18.19 10.35	U	1
o-Xylene	95-47-6	<0.000998	0.000998	mg/kg	10.18.19 10.35	U	1
Total Xylenes	1330-20-7	<0.000998	0.000998	mg/kg	10.18.19 10.35	U	1
Total BTEX		<0.000998	0.000998	mg/kg	10.18.19 10.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	10.18.19 10.35	
4-Bromofluorobenzene	460-00-4	119	%	70-130	10.18.19 10.35	

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #2 (2-3')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-007	Date Collected:	10.17.19 00.00	Sample Depth:	2 - 3 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6650**	202	mg/kg	10.18.19 16.05		20

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #2 (4-5')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-008	Date Collected:	10.17.19 00.00	Sample Depth:	4 - 5 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**36.3**	10.1	mg/kg	10.18.19 16.12		1

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #2 (6-7')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-009	Date Collected:	10.17.19 00.00	Sample Depth:	6 - 7 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**297**	199	mg/kg	10.18.19 16.30		20

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #2 (9-10')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-010	Date Collected:	10.17.19 00.00	Sample Depth:	9 - 10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**74.0**	10.1	mg/kg	10.18.19 22.40		1

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #3 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-011	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**32.2**	10.1	mg/kg	10.18.19 22.47		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	10.17.19 16.30	Basis:	Wet Weight
Seq Number:	3104747				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.18.19 06.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	10.18.19 06.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.18.19 06.06	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.18.19 06.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.18.19 06.06	
o-Terphenyl	84-15-1	93	%	70-135	10.18.19 06.06	

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #3 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-011	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.17.19 17.10	Basis:	Wet Weight
Seq Number:	3104782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00101	0.00101	mg/kg	10.18.19 10.55	U	1
Toluene	108-88-3	<0.00101	0.00101	mg/kg	10.18.19 10.55	U	1
Ethylbenzene	100-41-4	<0.00101	0.00101	mg/kg	10.18.19 10.55	U	1
m,p-Xylenes	179601-23-1	<0.00202	0.00202	mg/kg	10.18.19 10.55	U	1
o-Xylene	95-47-6	<0.00101	0.00101	mg/kg	10.18.19 10.55	U	1
Total Xylenes	1330-20-7	<0.00101	0.00101	mg/kg	10.18.19 10.55	U	1
Total BTEX		<0.00101	0.00101	mg/kg	10.18.19 10.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	10.18.19 10.55	
4-Bromofluorobenzene	460-00-4	125	%	70-130	10.18.19 10.55	

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #3 (2-3')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-012	Date Collected:	10.17.19 00.00	Sample Depth:	2 - 3 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**64.5**	9.96	mg/kg	10.18.19 17.02		1

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #3 (4-5')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-013	Date Collected:	10.17.19 00.00	Sample Depth:	4 - 5 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**414**	49.4	mg/kg	10.18.19 22.54		5

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #3 (6-7')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-014	Date Collected:	10.17.19 00.00	Sample Depth:	6 - 7 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1720**	100	mg/kg	10.18.19 17.14		10

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #3 (9-10')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-015	Date Collected:	10.17.19 00.00	Sample Depth:	9 - 10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**161**	10.1	mg/kg	10.18.19 17.21		1

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #3 (14-15')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-016	Date Collected:	10.17.19 00.00	Sample Depth:	14 - 15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**128**	10.1	mg/kg	10.18.19 17.27		1

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-017	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1020**	10.1	mg/kg	10.18.19 17.46		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	10.17.19 16.30	Basis:	Wet Weight
Seq Number:	3104747				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	10.18.19 06.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	10.18.19 06.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	10.18.19 06.26	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	10.18.19 06.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	10.18.19 06.26	
o-Terphenyl	84-15-1	112	%	70-135	10.18.19 06.26	

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-017	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.17.19 17.10	Basis:	Wet Weight
Seq Number:	3104782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.000998	0.000998	mg/kg	10.18.19 11.15	U	1
Toluene	108-88-3	<0.000998	0.000998	mg/kg	10.18.19 11.15	U	1
Ethylbenzene	100-41-4	<0.000998	0.000998	mg/kg	10.18.19 11.15	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	10.18.19 11.15	U	1
o-Xylene	95-47-6	<0.000998	0.000998	mg/kg	10.18.19 11.15	U	1
Total Xylenes	1330-20-7	<0.000998	0.000998	mg/kg	10.18.19 11.15	U	1
Total BTEX		<0.000998	0.000998	mg/kg	10.18.19 11.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	10.18.19 11.15	
1,4-Difluorobenzene	540-36-3	102	%	70-130	10.18.19 11.15	

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (2-3')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-018	Date Collected:	10.17.19 00.00	Sample Depth:	2 - 3 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1920**	100	mg/kg	10.18.19 23.07		10

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (4-5')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-019	Date Collected:	10.17.19 00.00	Sample Depth:	4 - 5 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 14.10	Basis:	Wet Weight
Seq Number:	3104896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**363**	50.0	mg/kg	10.21.19 11.33		5

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (6-7')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-020	Date Collected:	10.17.19 00.00	Sample Depth:	6 - 7 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7340**	200	mg/kg	10.18.19 18.44		20

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (9-10')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-021	Date Collected:	10.17.19 00.00	Sample Depth:	9 - 10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1320**	100	mg/kg	10.18.19 19.04		10

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (14-15')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-022	Date Collected:	10.17.19 00.00	Sample Depth:	14 - 15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**752**	49.8	mg/kg	10.18.19 19.11		5

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #4 (19-20')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-023	Date Collected:	10.17.19 00.00	Sample Depth:	19 - 20 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**619**	49.8	mg/kg	10.18.19 19.17		5

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #5 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-024	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**102**	9.88	mg/kg	10.18.19 19.24		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DTH			% Moisture:	
Analyst:	DTH	Date Prep:	10.17.19 16.30	Basis:	Wet Weight
Seq Number:	3104747				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	10.18.19 07.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	10.18.19 07.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	10.18.19 07.05	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	10.18.19 07.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	10.18.19 07.05	
o-Terphenyl	84-15-1	104	%	70-135	10.18.19 07.05	

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #5 (0-1')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-024	Date Collected:	10.17.19 00.00	Sample Depth:	0 - 1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.17.19 17.10	Basis:	Wet Weight
Seq Number:	3104782				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00100	0.00100	mg/kg	10.18.19 12.18	U	1
Toluene	108-88-3	<0.00100	0.00100	mg/kg	10.18.19 12.18	U	1
Ethylbenzene	100-41-4	<0.00100	0.00100	mg/kg	10.18.19 12.18	U	1
m,p-Xylenes	179601-23-1	<0.00200	0.00200	mg/kg	10.18.19 12.18	U	1
o-Xylene	95-47-6	<0.00100	0.00100	mg/kg	10.18.19 12.18	U	1
Total Xylenes	1330-20-7	<0.00100	0.00100	mg/kg	10.18.19 12.18	U	1
Total BTEX		<0.00100	0.00100	mg/kg	10.18.19 12.18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	104	%	70-130	10.18.19 12.18	
1,4-Difluorobenzene	540-36-3	90	%	70-130	10.18.19 12.18	

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #5 (2-3')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-025	Date Collected:	10.17.19 00.00	Sample Depth:	2 - 3 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**146**	9.92	mg/kg	10.18.19 19.31		1

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #5 (4-5')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-026	Date Collected:	10.17.19 00.00	Sample Depth:	4 - 5 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3780**	100	mg/kg	10.18.19 19.51		10

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #5 (6-7')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-027	Date Collected:	10.17.19 00.00	Sample Depth:	6 - 7 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6400**	202	mg/kg	10.18.19 19.58		20

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Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #5 (9-10')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-028	Date Collected:	10.17.19 00.00	Sample Depth:	9 - 10 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**202**	10.1	mg/kg	10.21.19 11.52	D	1

Certificate of Analytical Results 640368

Tetra Tech- Midland, Midland, TX

COG - Rocket Fed Com 5H (7.10/19)

Sample Id:	**Borehole #5 (14-15')**	Matrix:	Soil	Date Received:	10.17.19 16.35
Lab Sample Id:	640368-029	Date Collected:	10.17.19 00.00	Sample Depth:	14 - 15 ft
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	10.18.19 17.10	Basis:	Wet Weight
Seq Number:	3104897				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**209**	200	mg/kg	10.18.19 20.11		20

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 640368

Tetra Tech- Midland

COG - Rocket Fed Com 5H (7.10/19)

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3104896 — Matrix: Solid — Date Prep: 10.18.19
MB Sample Id: 7688478-1-BLK — LCS Sample Id: 7688478-1-BKS — LCSD Sample Id: 7688478-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	253	101	253	101	90-110	0	20	mg/kg	10.18.19 13:14	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3104897 — Matrix: Solid — Date Prep: 10.18.19
MB Sample Id: 7688482-1-BLK — LCS Sample Id: 7688482-1-BKS — LCSD Sample Id: 7688482-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	249	100	245	98	90-110	2	20	mg/kg	10.18.19 18:30	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3104896 — Matrix: Soil — Date Prep: 10.18.19
Parent Sample Id: 640368-001 — MS Sample Id: 640368-001 S — MSD Sample Id: 640368-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	26.5	200	224	99	225	99	90-110	0	20	mg/kg	10.18.19 15:22	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3104896 — Matrix: Soil — Date Prep: 10.18.19
Parent Sample Id: 640368-011 — MS Sample Id: 640368-011 S — MSD Sample Id: 640368-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.2	994	985	96	996	97	90-110	1	20	mg/kg	10.18.19 16:49	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3104897 — Matrix: Soil — Date Prep: 10.18.19
Parent Sample Id: 640368-020 — MS Sample Id: 640368-020 S — MSD Sample Id: 640368-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7340	4020	12400	126	12300	124	90-110	1	20	mg/kg	10.18.19 18:50	X

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 640368

Tetra Tech- Midland

COG - Rocket Fed Com 5H (7.10/19)

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3104897 Matrix: Solid Date Prep: 10.18.19
Parent Sample Id: 640369-002 MS Sample Id: 640369-002 S MSD Sample Id: 640369-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1160	1990	3350	110	3280	107	90-110	2	20	mg/kg	10.18.19 20:32	

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3104747 Matrix: Solid Date Prep: 10.17.19
MB Sample Id: 7688441-1-BLK LCS Sample Id: 7688441-1-BKS LCSD Sample Id: 7688441-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1010	101	970	97	70-135	4	35	mg/kg	10.18.19 02:11	
Diesel Range Organics (DRO)	<50.0	1000	920	92	861	86	70-135	7	35	mg/kg	10.18.19 02:11	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		117		109		70-135	%	10.18.19 02:11
o-Terphenyl	101		112		109		70-135	%	10.18.19 02:11

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3104747 Matrix: Solid Date Prep: 10.17.19
MB Sample Id: 7688441-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.18.19 01:52	

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3104747 Matrix: Soil Date Prep: 10.17.19
Parent Sample Id: 640361-016 MS Sample Id: 640361-016 S MSD Sample Id: 640361-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.1	1000	894	89	882	89	70-135	1	35	mg/kg	10.18.19 03:10	
Diesel Range Organics (DRO)	<50.1	1000	817	82	811	82	70-135	1	35	mg/kg	10.18.19 03:10	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		113		70-135	%	10.18.19 03:10
o-Terphenyl	107		116		70-135	%	10.18.19 03:10

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 640368

Tetra Tech- Midland

COG - Rocket Fed Com 5H (7.10/19)

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3104782 Matrix: Solid Date Prep: 10.17.19

MB Sample Id: 7688433-1-BLK LCS Sample Id: 7688433-1-BKS LCSD Sample Id: 7688433-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00100	0.100	0.0939	94	0.0966	97	70-130	3	35	mg/kg	10.18.19 06:37	
Toluene	<0.00100	0.100	0.0927	93	0.0955	96	70-130	3	35	mg/kg	10.18.19 06:37	
Ethylbenzene	<0.00100	0.100	0.0930	93	0.0960	96	71-129	3	35	mg/kg	10.18.19 06:37	
m,p-Xylenes	<0.00200	0.200	0.202	101	0.209	105	70-135	3	35	mg/kg	10.18.19 06:37	
o-Xylene	<0.00100	0.100	0.102	102	0.106	106	71-133	4	35	mg/kg	10.18.19 06:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		105		105		70-130	%	10.18.19 06:37
4-Bromofluorobenzene	120		123		123		70-130	%	10.18.19 06:37

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3104782 Matrix: Soil Date Prep: 10.17.19

Parent Sample Id: 640361-021 MS Sample Id: 640361-021 S MSD Sample Id: 640361-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000982	0.0982	0.0837	85	0.0880	89	70-130	5	35	mg/kg	10.18.19 07:15	
Toluene	<0.000982	0.0982	0.0799	81	0.0841	85	70-130	5	35	mg/kg	10.18.19 07:15	
Ethylbenzene	<0.000982	0.0982	0.0775	79	0.0831	84	71-129	7	35	mg/kg	10.18.19 07:15	
m,p-Xylenes	<0.00196	0.196	0.162	83	0.176	89	70-135	8	35	mg/kg	10.18.19 07:15	
o-Xylene	<0.000982	0.0982	0.0845	86	0.0945	96	71-133	11	35	mg/kg	10.18.19 07:15	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		107		70-130	%	10.18.19 07:15
4-Bromofluorobenzene	123		125		70-130	%	10.18.19 07:15

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

640368

Analysis Request of Chain of Custody Record

Page 1 of 3

Tetra Tech, Inc.

901W Wall Street, Ste 100
Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: CONCHO

Site Manager: MIKE CARMONA

Project Name: ROCKET FED COM 5H (7.10.19)

Project Location (county, state): Eddy Co, NM

Project #: 212C-MD-01901

Invoice to: COG - IKE TAVAREZ

Receiving Laboratory: XENCO

Sampler Signature: CONNER MOEHRING

Comments: RUN DEEPER SAMPLE if GRO + DRO exceeds 100 mg/kg. Run deeper samples if benzene exceeds 10 mg/kg. or Total BTEX exceeds 50 mg/kg.

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX: WATER	MATRIX: SOIL	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: None	# CONTAINERS	FILTERED (Y/N)
	BOREHOLE #1 (0-1')	10/17/19			X			X		1	N
	(2-3')				X			X		1	N
	(4-5')				X			X		1	N
	(6-7')				X			X		1	N
	(9-10')				X			X		1	N
	BOREHOLE #2 (0-1')				X			X		1	N
	(2-3')				X			X		1	N
	(4-5')				X			X		1	N
	(6-7')				X			X		1	N
	(9-10')				X			X		1	N

ANALYSIS REQUEST (Circle or Specify Method No.)

Hold	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - 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	
	X		X												X				
															X				
															X				
															X				
															X				
															X				
	X		X												X				
															X				
															X				
															X				
															X				

Relinquished by: Conner Moehring Date: 10/17/19 Time: 16:35

Received by: Date: 10/17/19 Time: 16:35

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature: 0.2

REMARKS:

- ☐ STANDARD
- ☒ 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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v640369

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

901W Wall Street, Ste 100
Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: CONCHO

Site Manager: MIKE CARMONA

Project Name: ROCKET FED COM 5H (7.10.19)

Project Location (county, state): Eddy CO, NM

Project #: 212C-MD-01901

Invoice to: COG - IKE TAVAREZ

Receiving Laboratory: XENCO

Sampler Signature: CONNER MOEHRING

Comments: RUN DEEPER SAMPLE IF GRO+DRO exceeds 100 mg/kg. Run deeper sample if benzene exceeds 10 mg/kg. or Total BTEX exceeds 50 mg/kg.

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 2019 DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - 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				Hold
	BH#3 (0-1')	10/17/19			X					1	N	X		X												X							
	(2-3')				X					1	N															X							
	(4-5')				X					1	N															X							
	(6-7')				X					1	N															X							
	(9-10')				X					1	N															X							
	(14-15')				X					1	N															X							
	BH#4 (0-1')				X					1	N	X		X												X							
	(2-3')				X					1	N															X							
	(4-5')				X					1	N															X							
	(6-7')	↓			X					1	N															X							

Relinquished by: Conner Moehring Date: 10/17/19 Time: 16:35

Received by: Date: 10/17/19 Time: 16:35

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

ORIGINAL COPY

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB USE ONLY
Sample Temperature
0.2

REMARKS:
- [ ] STANDARD
- [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 #: _____

Analysis Request of Chain of Custody Record

Tetra Tech, Inc.

901W Wall Street, Ste 100
Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: CONCHO

Site Manager: MIKE CARMONA

Project Name: ROCKET FED COM 8H

Project Location (county, state): Eddy Co, NM

Project #: 212C-MD-01901

Invoice to: ConocoPhillips TAVAREZ

Receiving Laboratory: Xenco

Sampler Signature: CONNER MOEHRING

Comments: RUN DEEPER SAMPLE IF GRO+DRO exceeds 100 mg/kg. Run deeper samples if Benzene exceeds 10 mg/kg or Total BTEX exceeds 50 mg/kg.

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX: WATER	MATRIX: SOIL	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: None	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - 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	Hold
	Borehole # 4 (9-10')	10/17/19			X			X		1	N															X			
	(14-15')				X			X		1	N															X			
	(19-20')				X			X		1	N															X			
	BOREHOLE #5 (0-1')				X			X		1	N	X		X												X			
	(2-3')				X			X		1	N															X			
	(4-5')				X			X		1	N															X			
	(6-7')				X			X		1	N															X			
	(9-10')				X			X		1	N															X			
	(14-15')				X			X		1	N															X			

Relinquished by: Conner Moehring Date: 10/17/19 Time: 16:35

Received by: Date: 10/17/19 Time: 16:35

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

ORIGINAL COPY

LAB USE ONLY

Sample Temperature: 0.2

REMARKS:

- [ ] STANDARD
- [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 #:

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 10/17/2019 04:35:00 PM

Work Order #: 640368

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

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**Yes**
#6*Custody Seals Signed and dated?	**Yes**
#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: Elizabeth McClellan Date: 10/17/2019

Checklist reviewed by: Jessica Kramer Date: 10/21/2019