

## SITE INFORMATION

**Report Type: Closure Report      2RP-5165**

### General Site Information:

Site:	Myox 8 State #004H					
Company:	COG Operating LLC					
Section, Township and Range	Unit D	Sec. 17	T 26S	R 28E		
Lease Number:	API No. 30-015-41924					
County:	Eddy County					
GPS:	32.04965			-104.11487		
Surface Owner:	State					
Directions:	From the intersestion of Hwy 285 and Whites City Rd., head west on Whites City Rd. for 3.1 miles, turn left (south) onto unnamed lease road and go 1.1 miles, turn left (east) and go 0.18 miles and arrive on location.					

### Release Data:

<b>Date Released:</b>	12/22/2018
<b>Type Release:</b>	Produced Water
<b>Source of Contamination:</b>	Flowline
<b>Fluid Released:</b>	19 bbl
<b>Fluids Recovered:</b>	10 bbls

### Official Communication:

<b>Name:</b>	Ike Tavaréz		Clair Gonzales
<b>Company:</b>	COG Operating, LLC		Tetra Tech
<b>Address:</b>	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
<b>City:</b>	Midland Texas, 79701		Midland, Texas
<b>Phone number:</b>	(432) 686-3023		(432) 687-8110
<b>Fax:</b>	(432) 684-7137		
<b>Email:</b>	<a href="mailto:itavarez@concho.com">itavarez@concho.com</a>		<a href="mailto:Clair.Gonzales@tetrattech.com">Clair.Gonzales@tetrattech.com</a>

### Site Characterization

<b>Depth to Groundwater:</b>	>100'
<b>Karst Potential:</b>	Medium

### Recommended Remedial Action Levels (RRALs)

<b>Benzene</b>	<b>Total BTEX</b>	<b>TPH (GRO+DRO+MRO)</b>	<b>Chlorides</b>
10 mg/kg	50 mg/kg	100 mg/kg	600 mg/kg

April 23, 2019

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

**Re: Revised Closure Report for COG Operating, LLC, Myox 8 State #004H, Unit D, Section 17, Township 26 South, Range 28 East, Eddy County, New Mexico. 2RP-5165**

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to assess a release that occurred at the Myox 8 State #004H, Unit D, Section 02, Township 26 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.04965°, -104.11487°. The site location is shown on Figures 1 and 2.

## **Background**

According to the State of New Mexico C-141 Initial Report the release was discovered on December 22, 2018 and released approximately 19 barrels of produced water due to hole in the transition from a flowline to a ball valve. A vacuum truck was used to remove all freestanding fluids and approximately 10 barrels of fluid were recovered. The release impacted an area in the pasture and along a pipeline right of way (ROW), measuring approximately 370'x10'-50'. The initial C-141 Forms are included in Appendix A.

## **Site Characterization**

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 and the site is in a medium karst potential area. The nearest well is listed on the New Mexico Office of the State Engineer website in Section 15, approximately 2.8 miles Southeast of the site, and has a reported depth to groundwater of 175 feet below ground surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is approximately 50'-75' below surface. The groundwater data is shown in Appendix B.

## **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,

**Tetra Tech**

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

Tel 432.682.4559 Fax 432.682.3946 [www.tetrattech.com](http://www.tetrattech.com)

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. 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**

### Site Evaluation

On January 16, 2019, Tetra Tech personnel were onsite to install auger holes in the release area. A total of seven (7) auger holes (AH-1, AH-2, AH-3, AH-4, AH-5, AH-6, and AH-7) were installed to total depths ranging from 1' to 2.5' below surface. Additionally, six (6) horizontal delineation samples (Horizontal North-1, Horizontal North-2, Horizontal East-1, Horizontal South-1, Horizontal South-2, and Horizontal West-1) were collected outside of the spill footprint. 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.

#### *Horizontals*

Referring to Table 1, the horizontal delineation samples (Horizontal North-1, Horizontal North-2, Horizontal East-1, Horizontal South-1, Horizontal South-2, and Horizontal West-1) did not show any benzene, total BTEX, or total TPH above the laboratory reporting limits. Additionally, no samples showed chloride concentrations above the RRAL, with concentrations ranging from below the laboratory reporting limit to 91.7 mg/kg.

#### *Auger holes*

Referring to Table 1, the areas of auger holes (AH-1, AH-2, AH-3, AH-4, AH-5, AH-6, and AH-7) did not show any benzene, total BTEX, or total TPH above the laboratory reporting limits. The areas of auger holes (AH-1, AH-2, AH-3, AH-4 and AH-5) showed chloride highs at 0-1' below surface of 8,340 mg/kg (AH-1), 4,880 mg/kg (AH-2), 8,570 mg/kg (AH-3), 935 mg/kg (AH-4), and 10,900 mg/kg (AH-5). Chloride concentrations decreased with depth to below the RRAL in auger holes (AH-1, AH-2, and AH-4) at 1-1.5' below surface and in auger holes (AH-3 and AH-5) at 2-2.5' below surface. The areas of auger holes (AH-6 and AH-7) were not vertically defined.

### Additional Sampling

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.

### *Trenching*

Based on laboratory data, Tetra Tech returned on January 22, 2019, to install trenches in the release area. A total of two (2) trenches (T-1 and T-2) were installed to total depths of 8' (T-1) and 14' (T-2). Referring to Table 1, trench (T-2) was installed in the area of auger hole (AH-7) and none of the samples showed any chloride concentrations above the RRAL, with concentrations ranging from 32 mg/kg to 488 mg/kg. Trench (T-1) was installed in the area of auger hole (AH-6) and showed elevated chloride concentrations that declined slightly with depth, showing a bottom trench chloride concentration of 6,930 mg/kg.

### *Borehole*

Based on laboratory data, Tetra Tech returned on January 29, 2019, in order to vertically define the chlorides at auger hole (AH-6). A total of one (1) borehole (BH-1) was installed to a total depth of 20' below surface. Referring to Table 1, the area of borehole (BH-1) showed a chloride high of 17,600 mg/kg at (0-1'). Chloride concentrations then declined with depth to 199 mg/kg at (9-10') and showed a bottom hole concentration of 196 mg/kg at (19-20').

### **Remediation Activities – At Risk**

Based on the assessment results, COG requested to move forward to perform the remediation at risk. On February 4 through 12, 2019, Tetra Tech personnel were on site to supervise the remediation activities in the pasture and right of way (ROW) areas of auger holes (AH-1, AH-2, AH-3, AH-4, AH-5, AH-6, and AH-7) to total depths ranging from 1' to 6' below surface, as shown on Figure 4 and highlighted (green) on Table 1. Sidewall and bottom hole confirmation samples were collected every 200 square feet to ensure proper removal of the impacted soils. The samples were submitted to the laboratory to be analyzed for TPH by method 8015 extended, BTEX by method 8021B, and chlorides by EPA method 300.0. The sampling results are summarized in Table 1. The excavation depths and sample locations are shown in Figure 4.

Referring to Table 1, none of the sidewall or bottom hole confirmation samples collected showed benzene, total BTEX, or total TPH above the laboratory reporting limit. Additionally, none of the confirmation samples showed chloride concentrations above the RRAL, with concentrations ranging from 48 mg/kg to 432 mg/kg. Approximately 880 cubic yards of excavated material was transported for proper disposal. The excavation areas have been backfilled with clean material to surface grade.

### *Revegetation Plan*

The backfilled areas will be seeded in June 2019 in order to coincide with the rainy season in Southeastern New Mexico to aid in revegetation. Based on the soils at the site, the NMSLO Loamy (L) Sites Seed Mixture will be used for seeding and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.

Site inspections will be performed to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the





**TETRA TECH**

NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The NMSLO seed mixture details and corresponding pounds pure live seed per acre are included in Appendix D.

### **Conclusion**

Based on the soil assessment, laboratory results, and remediation work performed at the site, COG requests closure of this spill. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,  
TETRA TECH

Clair Gonzales,  
Project Manager

Johnathon Kell,  
Geologist

cc: Ike Tavarez – COG  
Dakota Neel - COG  
Rebecca Haskell - COG  
Sheldon Hitchcock - COG  
DeAnn Grant - COG

## Tables

**Table 1**  
**COG**  
**Myox 8 State Com #4H**  
**Eddy County, New Mexico**

[illegible]

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**Table 1**  
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**Eddy County, New Mexico**

Sample ID	Sample Date	BEB (ft)	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						
North #1	1/16/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	38.8
North #2	1/16/2019	-	-	X		<14.9	<14.9	<14.9	<14.9	<14.9	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	13.5
East #1	1/16/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.99
South #1	1/16/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	16.6
South #2	1/16/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	18.6
West #1	1/16/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	91.7
Bottom Hole 1	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0
Bottom Hole 2	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Bottom Hole 3	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
Bottom Hole 4	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
Bottom Hole 5	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
Bottom Hole 6	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	304
Bottom Hole 7	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	288
Bottom Hole 8	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
Bottom Hole 9	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	240
Bottom Hole 10	2/6/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0

**Table 1**  
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Sample ID	Sample Date	BEB (ft)	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						
Bottom Hole 11	2/8/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Bottom Hole 12	2/8/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Bottom Hole 13	2/8/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Bottom Hole 14	2/8/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
Bottom Hole 15	2/11/2019	3	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	240
Bottom Hole 16	2/11/2019	3	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	208
Bottom Hole 17	2/11/2019	3	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Bottom Hole 18	2/11/2019	3	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0
Bottom Hole 19	2/11/2019	3	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Bottom Hole 20	2/11/2019	3	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	144
Bottom Hole 21	2/11/2019	4	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	112
Bottom Hole 22	2/11/2019	4	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	160
Bottom Hole 23	2/12/2019	6	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	272
Bottom Hole 24	2/12/2019	6	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	160
Bottom Hole 25	2/12/2019	1	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0

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				In-Situ	Removed	GRO	DRO	GRO+DRO	ORO	Total						
Bottom Hole 26	2/12/2019	1	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	144
Bottom Hole 27	2/12/2019	1	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0
Bottom Hole 28	2/12/2019	1	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	112
Bottom Hole 29	2/12/2019	1	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	192.0
Bottom Hole 30	2/12/2019	1	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	336
Bottom Hole 31	2/12/2019	2	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	208
NSW-1	2/6/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
NSW-2	2/8/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	208
NSW-3	2/11/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	112
NSW-4	2/11/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
NSW-5	2/11/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
NSW-6	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	144
NSW-7	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
NSW-8	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	160
NSW-9	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	400
NSW-10	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	192
NSW-11	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	208



**Table 1**  
**COG**  
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Sample ID	Sample Date	BEB (ft)	Sample Depth (ft)	Soil Status		TPH (mg/kg)					Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	GRO+DRO	ORO	Total						
ESW-1	2/6/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0
ESW-2	2/6/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	144
ESW-3	2/11/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
ESW-4	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	416
ESW-5	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	160
WSW-1	2/6/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
WSW-2	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0
WSW-3	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	112
WSW-4	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	112
WSW-5	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	128
SSW-1	2/6/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	128
SSW-2	2/8/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	208
SSW-3	2/11/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	96.0
SSW-4	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	160
SSW-5	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	320
SSW-6	2/12/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	432
SSW-7	2/14/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	272

( - ) Not Analyzed

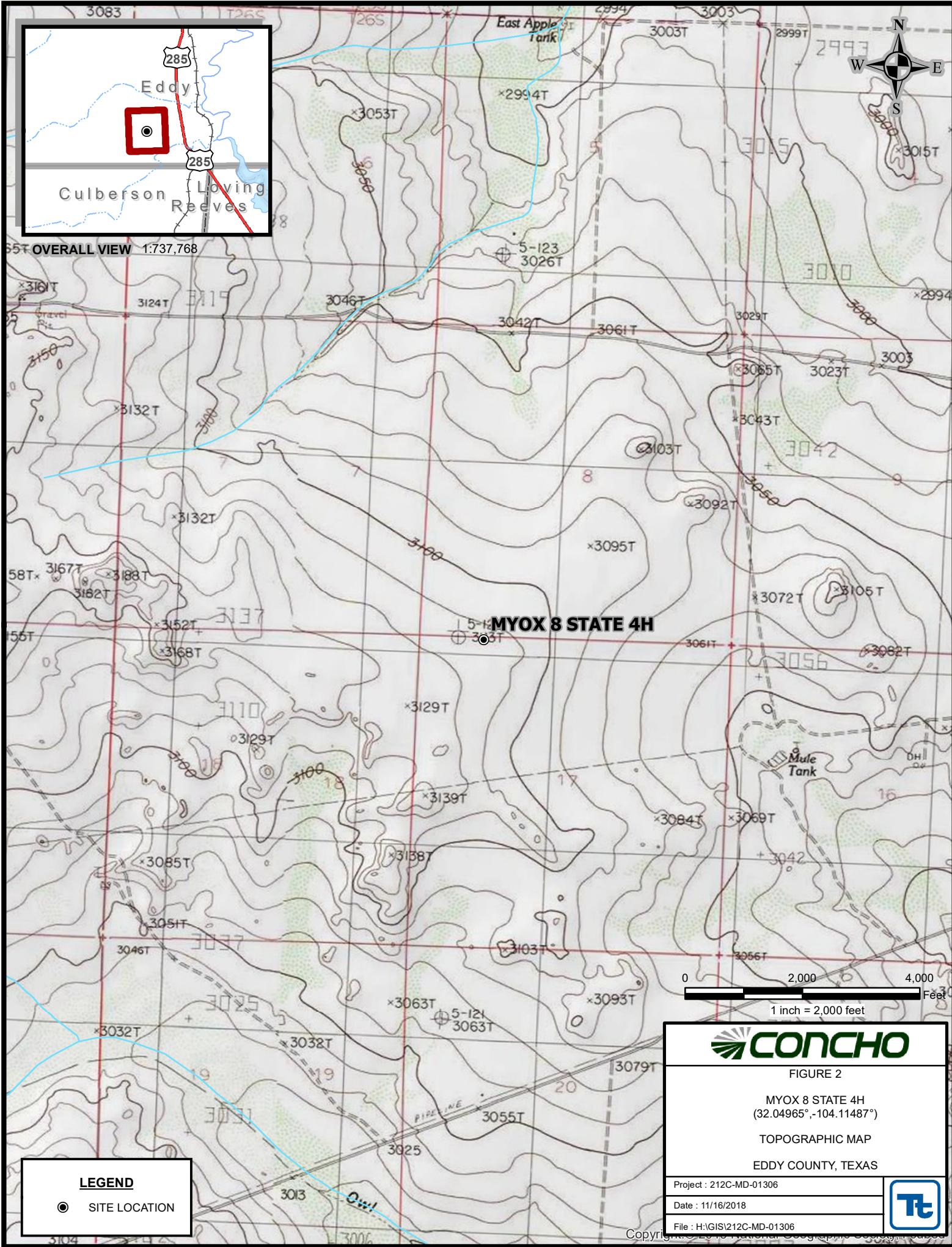
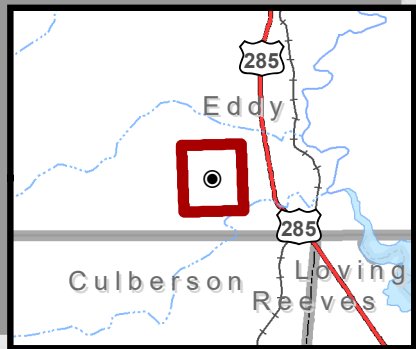
 Proposed Excavation Depth

<b>Client:</b>	<b>COG</b>			
<b>Site Name</b>	Myox 8 State #004H			
<b>Boring/Well:</b>	BH-1			
<b>GPS</b>	32.04965, -104.11487			
<b>Project #:</b>	212C-MD-01562			
<b>Total Depth</b>	19'-20'			
<b>Date Installed:</b>	1/29/2019			
<b>DEPTH (Ft)</b>	<b>Lithology/Sample Description</b>	<b>NOTES</b>	<b>Salinity (PPM)</b>	<b>Titration (ppm)</b>
<i>0-1</i>	<i>Brown, silty clay</i>	<i>No stain or Odor</i>	<i>Over Limit</i>	<i>Over Limit</i>
<i>2-3</i>	<i>Tan, silty sand w/ pea gravel</i>	<i>No Stain or odor</i>	<i>3,130</i>	<i>-</i>
<i>4-5</i>	<i>Tan, silty sand w/ gravel</i>	<i>No Stain or odor</i>	<i>1,940</i>	<i>-</i>
<i>6-7</i>	<i>"</i>	<i>No Stain or odor</i>	<i>1,240</i>	<i>960</i>
<i>9-10</i>	<i>Tan, sandy clay</i>	<i>No Stain or odor</i>	<i>1,320</i>	<i>480</i>
<i>14-15</i>	<i>"</i>	<i>No Stain or odor</i>	<i>1,140</i>	<i>280</i>
<i>19-20</i>	<i>Tan, sandy clay w/ gravel</i>	<i>No Stain or odor</i>	<i>780</i>	<i>240</i>

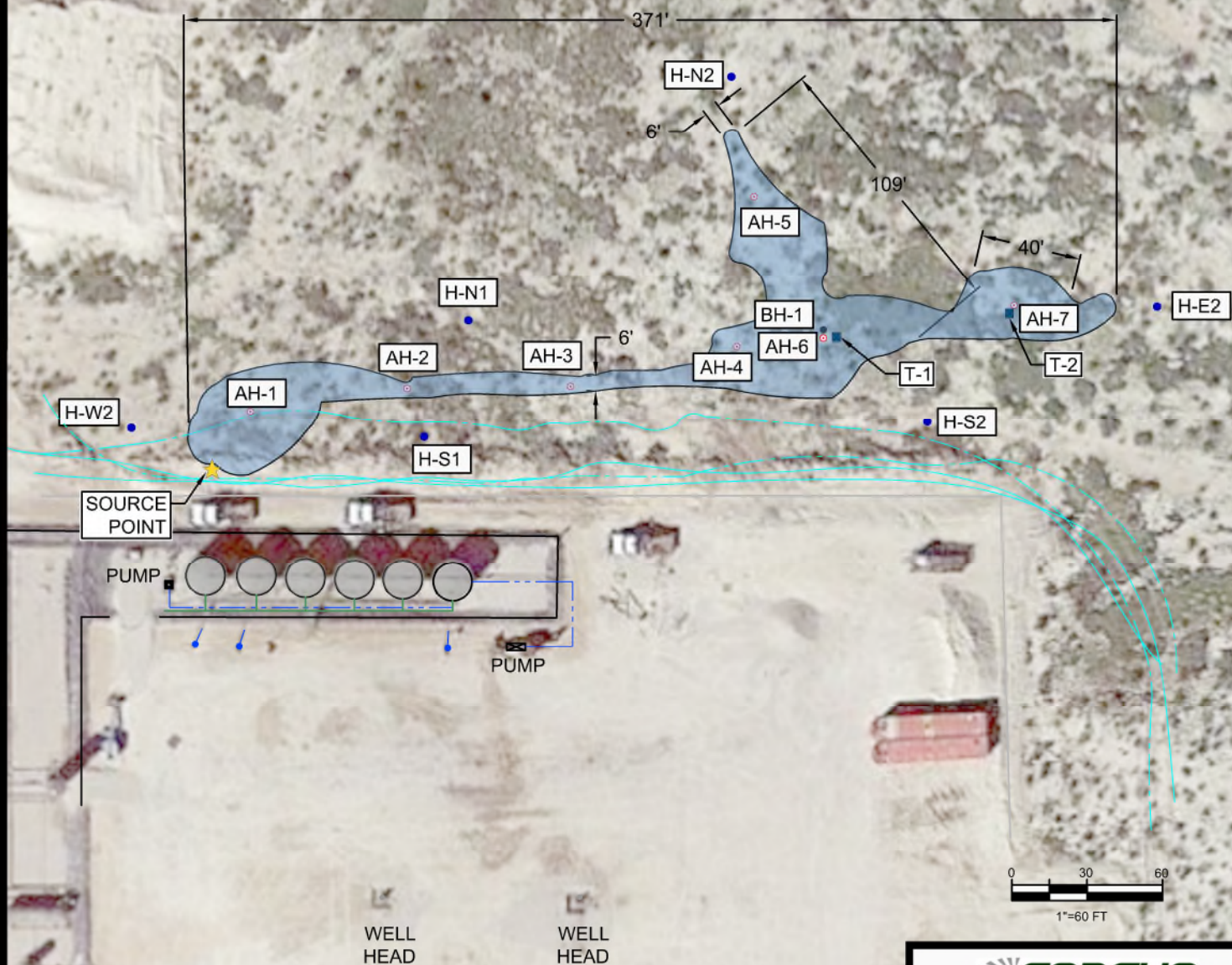
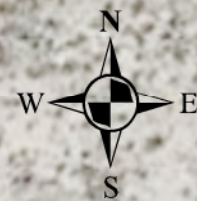
## Figures











**LEGEND**

- BOREHOLE SAMPLE LOCATIONS
- ⊗ AUGERHOLE SAMPLE LOCATIONS
- SIDEWALL SAMPLE LOCATIONS
- TRENCH SAMPLE LOCATIONS
- SPILL AREA
- EQUIPMENT
- ABOVEGROUND POLY LINE
- - - STEEL PIPE





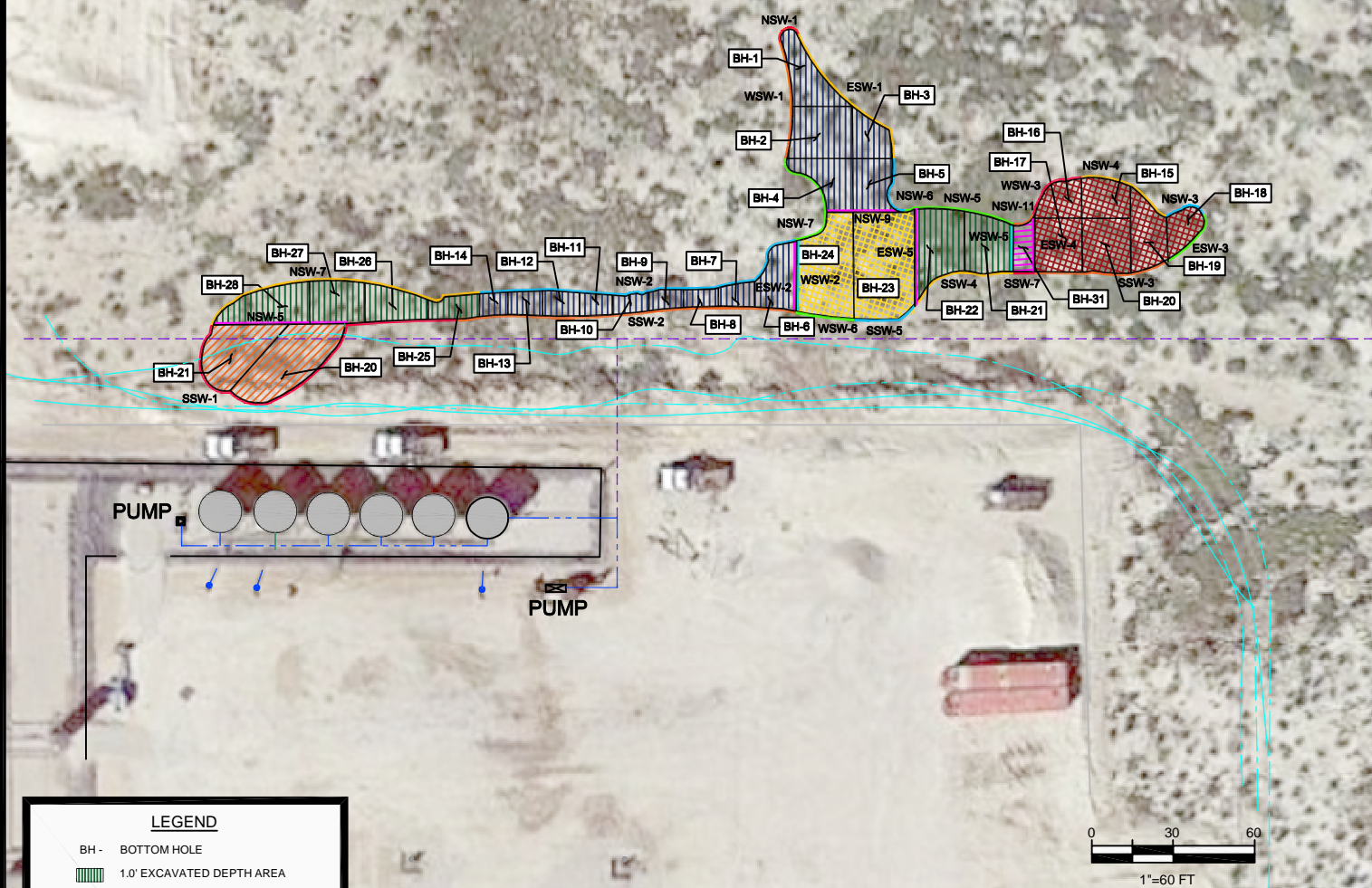
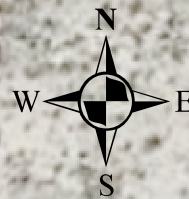
FIGURE 3

MYOX 8 STATE 4H  
(32.04965°, -104.11487°)

SPILL ASSESSMENT MAP  
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01562	
Date: 03/01/2019	
File: H:\GIS\212C-MD-01562	





#### LEGEND

- BH - BOTTOM HOLE
- 1.0' EXCAVATED DEPTH AREA
- 1.5' EXCAVATED DEPTH AREA
- 2.0' EXCAVATED DEPTH AREA
- 3.0' EXCAVATED DEPTH AREA
- 4.0' EXCAVATED DEPTH AREA
- 6.0' EXCAVATED DEPTH AREA
- EQUIPMENT
- ABOVE GROUND POLY PIPE
- STEEL PIPE
- BURIED PIPE
- SIDEWALL DESIGNATIONS

WELL  
HEAD

WELL  
HEAD



FIGURE 4

MYOX 8 STATE 4H  
(32.04965°, -104.11487°)

EXCAVATION AREA & DEPTH MAP  
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01562

Date: 02/27/2019

File: H:\GIS\212C-MD-01562





Photos

COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**AUGER HOLES**



TETRA TECH



Area of H-W1 – View to West



Area of H-E1 – View to West



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**AUGER HOLES**



TETRA TECH



Area of H-N1 – View to South



Area of H-N2 – View to West



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**AUGER HOLES**



TETRA TECH



Area of H-S1 – View to Southwest



Area of H-S2 – View to South



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**AUGER HOLES**



Area of AH-1 – View to South



Area of AH-2 – View to East



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**AUGER HOLES**



TETRA TECH



Area of AH-3 – View to East



Area of AH-4 – View to North



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**AUGER HOLES**



Area of AH-5 – View to North



Area of AH-6 – View to West



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**AUGER HOLES**



TETRA TECH



Area of AH-7 – View to East



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**TRENCHES**



Area of T-1 – View to Northeast



Area of T-2 – View to East



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**BOREHOLE**



Area of BH-1 – View to South



Area of BH-1 – View to North-northeast

COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**REMEDIATION**



Area of Excavation – View to East



Area of Excavation – View to West



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**REMEDIATION**



TETRA TECH



Area of Excavation – View to South



Area of Excavation – View to Northeast



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**REMEDIATION**



TETRA TECH



Area of Excavation – View to East



Area of Excavation – View to Northeast



COG Operating LLC  
Myox 8 State #004H  
Eddy County, New Mexico  
**REMEDIATION**



TETRA TECH



Area of Excavation – View to West



Area of Excavation – View to West-southwest



## 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	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

### Location of Release Source

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

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

### Initial Response

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

<input type="checkbox"/> The source of the release has been stopped. <input type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: _____	Title: _____
Signature: <u>Delann Opreant</u>	Date: _____
email: _____	Telephone: _____
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____

Incident ID	
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?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> 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?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> 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.

<p><b>Characterization Report Checklist:</b> <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><li><input type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.</li><li><input type="checkbox"/> Field data</li><li><input type="checkbox"/> Data table of soil contaminant concentration data</li><li><input type="checkbox"/> Depth to water determination</li><li><input type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release</li><li><input type="checkbox"/> Boring or excavation logs</li><li><input type="checkbox"/> Photographs including date and GIS information</li><li><input type="checkbox"/> Topographic/Aerial maps</li><li><input type="checkbox"/> Laboratory data including chain of custody</li></ul>
--

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.

Incident ID	
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: \_\_\_\_\_ Title: \_\_\_\_\_

Signature:  \_\_\_\_\_ Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

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

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

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature:  Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

## Appendix B

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**COG Myox 8 State #4H**

**25 South 27 East**

6	5	4	3	2	1
				27	
7	8	9	10	11	12
					92
18	17	16	15	14	13
19	20	21	22	23	24
	24		26		67
30	29	28	27	26	25
			16		12
31	32	33	34	35	36
		19			

**25 South 28 East**

6	5	4	35	3	32	2	1
	59						Site
7	8	9	10	11	12		
18	17	16	15	48	14	13	
67			49				
19	20	21	22	23	24		
	96						
30	29	28	27	26	40	25	
	15	90					
31	32	33	34	35	55	40	

**25 South 29 East**

6	5	4	3	2	98	1
40						
7	8	9	10	11	12	
			40			
18	17	16	15	60	14	13
		165	140			
19	20	21	22	23	24	
30	29	28	27	26	25	
30						
31	32	115	33	34	35	36

**26 South 27 East**

6	5	4	3	2	1
	12				
7	8	9	10	11	12
18	17	16	15	14	13
					35
19	20	21	22	23	24
			50		
30	29	28	27	26	25
31	32	33	34	35	36

**26 South 28 East**

6	5	4	3	2	120	1
				21		
7	8	9	10	11	12	
18	17	16	15	14	93	13
			175	120	56	
19	20	21	22	120	23	24
			22			
30	29	28	27	26	25	
			145			
31	32	33	34	35	36	

**26 South 29 East**

6	5	78	4	3	2	1
7	8	9	10	11	12	
18	17	16	15	14	13	
		125				
19	20	21	22	57	23	24
			69			
30	29	28	27	26	25	
31	32	33	34	35	36	

**88** New Mexico State Engineers Well Reports

**105** USGS Well Reports

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

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

**34** NMOCD - Groundwater Data

**121** Abandoned Waterwell (recently measured)





## New Mexico Office of the State Engineer

# Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
<a href="#">C 01668</a>		CUB	ED	3	3	12	26S	28E		589957	3546554*	250	100	150
<a href="#">C 02160</a>		CUB	ED	4	1	2	14	26S	28E	589243	3546044*	300	120	180
<a href="#">C 02160 S</a>		CUB	ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
<a href="#">C 02160 S2</a>		CUB	ED	1	1	2	14	26S	28E	589043	3546244*	300	120	180
<a href="#">C 02160 S3</a>		CUB	ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
<a href="#">C 02160 S4</a>		CUB	ED	2	2	1	14	26S	28E	588834	3546241*	300	120	180
<a href="#">C 02160 S5</a>		CUB	ED	1	1	1	14	26S	28E	588225	3546237*	300	120	180
<a href="#">C 02160 S6</a>		CUB	ED	3	3	1	14	26S	28E	588232	3545635*	300	120	180
<a href="#">C 02160 S7</a>		CUB	ED	3	3	1	22	26S	28E	586638	3543998*	300	120	180
<a href="#">C 02160 S8</a>		CUB	ED	2	3	3	12	26S	28E	590056	3546653*	200	120	80
<a href="#">C 02160 S9</a>		CUB	ED	3	3	2	02	26S	28E	589020	3548868*	300	120	180
<a href="#">C 02477</a>		CUB	ED	1	1	03	26S	28E		586687	3549347*	150		
<a href="#">C 02478</a>		CUB	ED	2	1	05	26S	28E		583848	3549325*	100		
<a href="#">C 02479</a>		CUB	ED	4	4	10	26S	28E		587909	3546534*	200		
<a href="#">C 02480</a>		CUB	ED	4	4	10	26S	28E		587909	3546534*	150		
<a href="#">C 02481</a>		CUB	ED	1	1	14	26S	28E		588326	3546138*	200		
<a href="#">C 02894</a>		C	ED	2	2	3	12	26S	28E	590458	3547061*	240		
<a href="#">C 02924</a>		C	ED	1	3	2	11	26S	28E	589032	3547451*			
<a href="#">C 04022 POD1</a>		CUB	ED	4	4	2	15	26S	28E	588082	3545647	220	175	45
<a href="#">C 04022 POD2</a>		CUB	ED	2	2	2	27	26S	28E	588106	3543082	250	145	105

Average Depth to Water: **124 feet**

Minimum Depth: **100 feet**

Maximum Depth: **175 feet**

**Record Count:** 20

**PLSS Search:**

**Township:** 26S **Range:** 28E

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.






1/14/19 1:55 PM

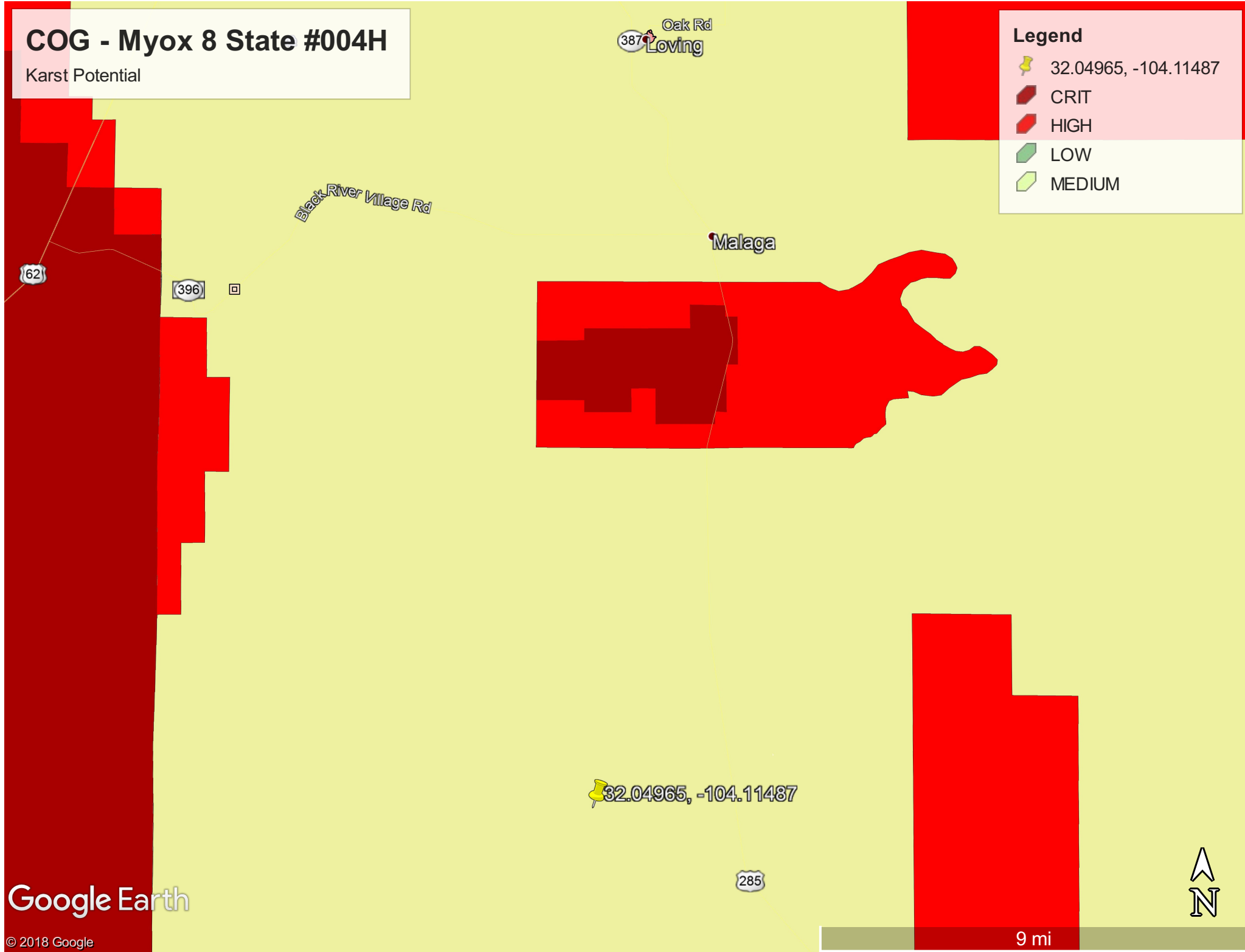
WATER COLUMN/ AVERAGE DEPTH TO WATER

# COG - Myox 8 State #004H

Karst Potential

## Legend

-  32.04965, -104.11487
-  CRIT
-  HIGH
-  LOW
-  MEDIUM

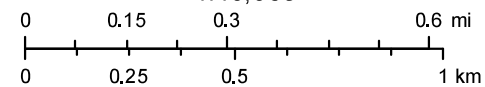


# New Mexico NFHL Data



February 14, 2019

1:18,056



FEMA  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

## Appendix C

# **Analytical Report 611687**

## **for Tetra Tech- Midland**

**Project Manager: Clair Gonzales**

**Myox 8 State 4H**

**212C-MD-01462**

**23-JAN-19**

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)

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-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



23-JAN-19

Project Manager: **Clair Gonzales**  
**Tetra Tech- Midland**  
901 West Wall ST  
Midland, TX 79701

Reference: XENCO Report No(s): **611687**  
**Myox 8 State 4H**  
Project Address: Eddy Co, NM

**Clair Gonzales:**

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) 611687. 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. 611687 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**  
Project Assistant

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

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## Tetra Tech- Midland, Midland, TX

Myox 8 State 4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-1')	S	01-16-19 00:00		611687-001
AH #1 (1-1.5')	S	01-16-19 00:00		611687-002
AH #1 (2-2.5')	S	01-16-19 00:00		611687-003
AH #2 (0-1')	S	01-16-19 00:00		611687-004
AH #2 (1-1.5')	S	01-16-19 00:00		611687-005
AH #2 (2-2.5')	S	01-16-19 00:00		611687-006
AH #3 (0-1')	S	01-16-19 00:00		611687-007
AH #3 (1-.51')	S	01-16-19 00:00		611687-008
AH #3 (2-2.5')	S	01-16-19 00:00		611687-009
AH #4 (0-1')	S	01-16-19 00:00		611687-010
AH #4 (1-1.5')	S	01-16-19 00:00		611687-011
AH #4 (2-2.5')	S	01-16-19 00:00		611687-012
AH #5 (0-1')	S	01-16-19 00:00		611687-013
AH #5 (1-1.5')	S	01-16-19 00:00		611687-014
AH #5 (2-2.5')	S	01-16-19 00:00		611687-015
AH #6 (0-1')	S	01-16-19 00:00		611687-016
AH #7 (0-1')	S	01-16-19 00:00		611687-017
AH #7 (1-1.5')	S	01-16-19 00:00		611687-018
AH #7 (2-2.5')	S	01-16-19 00:00		611687-019
Horizontal North #1	S	01-16-19 00:00		611687-020
Horizontal North #2	S	01-16-19 00:00		611687-021
Horizontal East #1	S	01-16-19 00:00		611687-022
Horizontal South #1	S	01-16-19 00:00		611687-023
Horizontal South #2	S	01-16-19 00:00		611687-024
Horizontal West #1	S	01-16-19 00:00		611687-025



## CASE NARRATIVE

**Client Name: Tetra Tech- Midland**

**Project Name: Myox 8 State 4H**

Project ID: 212C-MD-01462  
Work Order Number(s): 611687

Report Date: 23-JAN-19  
Date Received: 01/17/2019

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**Sample receipt non conformances and comments:**

None

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

None

**Analytical non conformances and comments:**

Batch: LBA-3076408 Chloride by EPA 300

Nitrite as N Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.

Samples in the analytical batch are: 611687-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020

Lab Sample ID 611687-009 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 611687-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020.

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

Batch: LBA-3076629 BTEX by EPA 8021B

Lab Sample ID 611687-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike. Benzene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 611687-001, -002, -004, -005, -007, -008, -010, -011, -013, -014, -016, -017, -018, -019, -020, -021, -022, -023, -024, -025.

The Laboratory Control Sample for Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene 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 611687

Tetra Tech- Midland, Midland, TX

Project Name: Myox 8 State 4H



**Project Id:** 212C-MD-01462  
**Contact:** Clair Gonzales  
**Project Location:** Eddy Co, NM

**Date Received in Lab:** Thu Jan-17-19 02:03 pm  
**Report Date:** 23-JAN-19  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	611687-001	611687-002	611687-003	611687-004	611687-005	611687-006
	<i>Field Id:</i>	AH #1 (0-1')	AH #1 (1-1.5')	AH #1 (2-2.5')	AH #2 (0-1')	AH #2 (1-1.5')	AH #2 (2-2.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Jan-22-19 09:00	Jan-22-19 09:00		Jan-22-19 09:00	Jan-22-19 09:00	
	<i>Analyzed:</i>	Jan-22-19 14:30	Jan-22-19 14:49		Jan-22-19 15:08	Jan-22-19 15:27	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Benzene		<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00200 0.00200	
Toluene		<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00200 0.00200	
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00200 0.00200	
m,p-Xylenes		<0.00401 0.00401	<0.00402 0.00402		<0.00402 0.00402	<0.00399 0.00399	
o-Xylene		<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00200 0.00200	
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00200 0.00200	
Total BTEX		<0.00200 0.00200	<0.00201 0.00201		<0.00201 0.00201	<0.00200 0.00200	
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00
	<i>Analyzed:</i>	Jan-18-19 19:59	Jan-18-19 20:05	Jan-21-19 08:58	Jan-18-19 20:18	Jan-18-19 19:41	Jan-18-19 20:39
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		8340 49.5	189 49.7	42.3 4.99	4880 49.6	200 5.00	40.7 5.00
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Jan-21-19 08:00	Jan-21-19 08:00		Jan-21-19 08:00	Jan-21-19 08:00	
	<i>Analyzed:</i>	Jan-21-19 11:51	Jan-21-19 12:50		Jan-21-19 13:10	Jan-21-19 13:30	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0		<15.0 15.0	<15.0 15.0	
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0		<15.0 15.0	<15.0 15.0	
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0		<15.0 15.0	<15.0 15.0	
Total TPH		<15.0 15.0	<15.0 15.0		<15.0 15.0	<15.0 15.0	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.  
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.  
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*Jessica Kramer*

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 611687

Tetra Tech- Midland, Midland, TX

Project Name: Myox 8 State 4H



**Project Id:** 212C-MD-01462  
**Contact:** Clair Gonzales  
**Project Location:** Eddy Co, NM

**Date Received in Lab:** Thu Jan-17-19 02:03 pm  
**Report Date:** 23-JAN-19  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	611687-007	611687-008	611687-009	611687-010	611687-011	611687-012
	<i>Field Id:</i>	AH #3 (0-1')	AH #3 (1-.51')	AH #3 (2-2.5')	AH #4 (0-1')	AH #4 (1-1.5')	AH #4 (2-2.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Jan-22-19 09:00	Jan-22-19 09:00		Jan-22-19 09:00	Jan-22-19 09:00	
	<i>Analyzed:</i>	Jan-22-19 15:46	Jan-22-19 16:05		Jan-22-19 16:24	Jan-22-19 16:43	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Benzene		<0.00200 0.00200	<0.00201 0.00201		<0.00200 0.00200	<0.00201 0.00201	
Toluene		<0.00200 0.00200	<0.00201 0.00201		<0.00200 0.00200	<0.00201 0.00201	
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201		<0.00200 0.00200	<0.00201 0.00201	
m,p-Xylenes		<0.00400 0.00400	<0.00402 0.00402		<0.00401 0.00401	<0.00402 0.00402	
o-Xylene		<0.00200 0.00200	<0.00201 0.00201		<0.00200 0.00200	<0.00201 0.00201	
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201		<0.00200 0.00200	<0.00201 0.00201	
Total BTEX		<0.00200 0.00200	<0.00201 0.00201		<0.00200 0.00200	<0.00201 0.00201	
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00
	<i>Analyzed:</i>	Jan-18-19 20:45	Jan-18-19 20:51	Jan-18-19 21:10	Jan-18-19 20:58	Jan-18-19 21:04	Jan-18-19 21:29
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		8570 50.0	1050 25.0	653 4.96	935 24.8	364 4.98	281 25.0
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Jan-21-19 08:00	Jan-21-19 08:00		Jan-21-19 08:00	Jan-21-19 08:00	
	<i>Analyzed:</i>	Jan-21-19 13:49	Jan-21-19 14:09		Jan-21-19 14:29	Jan-21-19 14:49	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0		<15.0 15.0	<14.9 14.9	
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0		<15.0 15.0	<14.9 14.9	
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0		<15.0 15.0	<14.9 14.9	
Total TPH		<15.0 15.0	<15.0 15.0		<15.0 15.0	<14.9 14.9	

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*Jessica Kramer*

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 611687

Tetra Tech- Midland, Midland, TX

Project Name: Myox 8 State 4H



**Project Id:** 212C-MD-01462  
**Contact:** Clair Gonzales  
**Project Location:** Eddy Co, NM

**Date Received in Lab:** Thu Jan-17-19 02:03 pm  
**Report Date:** 23-JAN-19  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	611687-013	611687-014	611687-015	611687-016	611687-017	611687-018
	<i>Field Id:</i>	AH #5 (0-1')	AH #5 (1-1.5')	AH #5 (2-2.5')	AH #6 (0-1')	AH #7 (0-1')	AH #7 (1-1.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Jan-22-19 09:00	Jan-22-19 09:00		Jan-22-19 09:00	Jan-22-19 09:00	Jan-22-19 09:00
	<i>Analyzed:</i>	Jan-22-19 17:02	Jan-22-19 17:21		Jan-22-19 18:35	Jan-22-19 18:54	Jan-22-19 19:13
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00200 0.00200		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	<0.00400 0.00400		<0.00399 0.00399	<0.00403 0.00403	<0.00398 0.00398
o-Xylene		<0.00199 0.00199	<0.00200 0.00200		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199
Total BTEX		<0.00199 0.00199	<0.00200 0.00200		<0.00200 0.00200	<0.00202 0.00202	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:00
	<i>Analyzed:</i>	Jan-18-19 21:35	Jan-18-19 21:56	Jan-18-19 22:02	Jan-18-19 22:09	Jan-18-19 22:15	Jan-18-19 22:21
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		10900 99.2	5770 99.0	276 49.8	7990 99.8	14000 100	10300 99.8
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Jan-21-19 08:00	Jan-21-19 08:00		Jan-21-19 08:00	Jan-21-19 08:00	Jan-21-19 08:00
	<i>Analyzed:</i>	Jan-21-19 15:09	Jan-21-19 15:29		Jan-21-19 16:28	Jan-21-19 16:48	Jan-21-19 17:07
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0		<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<14.9 14.9	<15.0 15.0		<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<14.9 14.9	<15.0 15.0		<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<14.9 14.9	<15.0 15.0		<15.0 15.0	<15.0 15.0	<15.0 15.0

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*Jessica Kramer*

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 611687

Tetra Tech- Midland, Midland, TX

Project Name: Myox 8 State 4H



**Project Id:** 212C-MD-01462  
**Contact:** Clair Gonzales  
**Project Location:** Eddy Co, NM

**Date Received in Lab:** Thu Jan-17-19 02:03 pm  
**Report Date:** 23-JAN-19  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	611687-019	611687-020	611687-021	611687-022	611687-023	611687-024
	<i>Field Id:</i>	AH #7 (2-2.5')	Horizontal North #1	Horizontal North #2	Horizontal East #1	Horizontal South #1	Horizontal South #2
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00	Jan-16-19 00:00
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Jan-22-19 09:00	Jan-22-19 09:00	Jan-22-19 09:00	Jan-22-19 09:00	Jan-22-19 09:00	Jan-22-19 09:00
	<i>Analyzed:</i>	Jan-22-19 19:32	Jan-22-19 19:51	Jan-22-19 20:10	Jan-22-19 20:29	Jan-22-19 20:48	Jan-22-19 21:07
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	<0.00400 0.00400	<0.00402 0.00402	<0.00399 0.00399	<0.00402 0.00402	<0.00398 0.00398
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Jan-18-19 12:00	Jan-18-19 12:00	Jan-18-19 12:30	Jan-18-19 12:30	Jan-18-19 12:30	Jan-18-19 12:30
	<i>Analyzed:</i>	Jan-18-19 22:27	Jan-18-19 22:33	Jan-18-19 23:13	Jan-21-19 09:06	Jan-19-19 00:43	Jan-18-19 23:38
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		5420 50.0	38.8 25.0	13.5 4.95	<4.99 4.99	16.6 5.00	18.6 5.00
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Jan-21-19 08:00	Jan-21-19 08:00	Jan-21-19 08:00	Jan-21-19 08:00	Jan-21-19 08:00	Jan-21-19 08:00
	<i>Analyzed:</i>	Jan-21-19 17:27	Jan-21-19 17:47	Jan-21-19 18:07	Jan-21-19 18:26	Jan-21-19 18:46	Jan-21-19 19:06
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0

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

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*Jessica Kramer*

Jessica Kramer  
Project Assistant





# Certificate of Analysis Summary 611687

Tetra Tech- Midland, Midland, TX

Project Name: Myox 8 State 4H



Project Id: 212C-MD-01462

Contact: Clair Gonzales

Project Location: Eddy Co, NM

Date Received in Lab: Thu Jan-17-19 02:03 pm

Report Date: 23-JAN-19

Project Manager: Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b> <b>Field Id:</b> <b>Depth:</b> <b>Matrix:</b> <b>Sampled:</b>	611687-025 Horizontal West #1  SOIL Jan-16-19 00:00					
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b> <b>Analyzed:</b> <b>Units/RL:</b>	Jan-22-19 09:00 Jan-22-19 21:26 mg/kg RL					
Benzene		<0.00200 0.00200					
Toluene		<0.00200 0.00200					
Ethylbenzene		<0.00200 0.00200					
m,p-Xylenes		<0.00401 0.00401					
o-Xylene		<0.00200 0.00200					
Total Xylenes		<0.00200 0.00200					
Total BTEX		<0.00200 0.00200					
<b>Chloride by EPA 300</b>	<b>Extracted:</b> <b>Analyzed:</b> <b>Units/RL:</b>	Jan-18-19 12:30 Jan-18-19 23:44 mg/kg RL					
Chloride		91.7 4.96					
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b> <b>Analyzed:</b> <b>Units/RL:</b>	Jan-21-19 08:00 Jan-21-19 19:26 mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0					
Diesel Range Organics (DRO)		<15.0 15.0					
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0					
Total TPH		<15.0 15.0					

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

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Version: 1.9%

*Jessica Kramer*

Jessica Kramer  
Project Assistant

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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076558

Sample: 611687-001 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 11:51

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.4	99.7	87	70-135	
o-Terphenyl	43.2	49.9	87	70-135	

Lab Batch #: 3076558

Sample: 611687-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 12:50

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.7	99.8	86	70-135	
o-Terphenyl	42.0	49.9	84	70-135	

Lab Batch #: 3076558

Sample: 611687-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 13:10

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.4	99.7	85	70-135	
o-Terphenyl	41.9	49.9	84	70-135	

Lab Batch #: 3076558

Sample: 611687-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 13:30

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.2	99.7	84	70-135	
o-Terphenyl	41.4	49.9	83	70-135	

Lab Batch #: 3076558

Sample: 611687-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 13:49

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.8	99.8	85	70-135	
o-Terphenyl	42.3	49.9	85	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076558

Sample: 611687-008 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 14:09

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.3	100	84	70-135	
o-Terphenyl	41.8	50.0	84	70-135	

Lab Batch #: 3076558

Sample: 611687-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 14:29

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	82.8	99.8	83	70-135	
o-Terphenyl	41.2	49.9	83	70-135	

Lab Batch #: 3076558

Sample: 611687-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 14:49

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	83.0	99.6	83	70-135	
o-Terphenyl	41.3	49.8	83	70-135	

Lab Batch #: 3076558

Sample: 611687-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 15:09

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.1	99.6	84	70-135	
o-Terphenyl	41.8	49.8	84	70-135	

Lab Batch #: 3076558

Sample: 611687-014 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 15:29

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.8	99.9	85	70-135	
o-Terphenyl	42.4	50.0	85	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076558

Sample: 611687-016 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 16:28

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.1	99.8	84	70-135	
o-Terphenyl	42.0	49.9	84	70-135	

Lab Batch #: 3076558

Sample: 611687-017 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 16:48

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.3	99.7	86	70-135	
o-Terphenyl	42.5	49.9	85	70-135	

Lab Batch #: 3076558

Sample: 611687-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 17:07

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.1	100	85	70-135	
o-Terphenyl	42.5	50.0	85	70-135	

Lab Batch #: 3076558

Sample: 611687-019 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 17:27

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.1	99.7	86	70-135	
o-Terphenyl	43.0	49.9	86	70-135	

Lab Batch #: 3076558

Sample: 611687-020 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 17:47

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.4	99.9	86	70-135	
o-Terphenyl	43.2	50.0	86	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076558

Sample: 611687-021 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 18:07

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.7	99.6	87	70-135	
o-Terphenyl	43.0	49.8	86	70-135	

Lab Batch #: 3076558

Sample: 611687-022 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 18:26

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.6	99.8	87	70-135	
o-Terphenyl	42.8	49.9	86	70-135	

Lab Batch #: 3076558

Sample: 611687-023 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 18:46

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.4	99.8	85	70-135	
o-Terphenyl	41.4	49.9	83	70-135	

Lab Batch #: 3076558

Sample: 611687-024 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 19:06

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.6	99.9	87	70-135	
o-Terphenyl	42.8	50.0	86	70-135	

Lab Batch #: 3076558

Sample: 611687-025 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 19:26

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.8	99.8	85	70-135	
o-Terphenyl	41.4	49.9	83	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076629

Sample: 611687-001 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 14:30

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0328	0.0300	109	70-130	
4-Bromofluorobenzene	0.0317	0.0300	106	70-130	

Lab Batch #: 3076629

Sample: 611687-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 14:49

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0332	0.0300	111	70-130	
4-Bromofluorobenzene	0.0340	0.0300	113	70-130	

Lab Batch #: 3076629

Sample: 611687-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 15:08

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0346	0.0300	115	70-130	

Lab Batch #: 3076629

Sample: 611687-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 15:27

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0333	0.0300	111	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

Lab Batch #: 3076629

Sample: 611687-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 15:46

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0353	0.0300	118	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076629

Sample: 611687-008 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 16:05

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0332	0.0300	111	70-130	
4-Bromofluorobenzene	0.0348	0.0300	116	70-130	

Lab Batch #: 3076629

Sample: 611687-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 16:24

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0332	0.0300	111	70-130	
4-Bromofluorobenzene	0.0342	0.0300	114	70-130	

Lab Batch #: 3076629

Sample: 611687-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 16:43

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0346	0.0300	115	70-130	

Lab Batch #: 3076629

Sample: 611687-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 17:02

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0354	0.0300	118	70-130	

Lab Batch #: 3076629

Sample: 611687-014 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 17:21

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0345	0.0300	115	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076629

Sample: 611687-016 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 18:35

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0319	0.0300	106	70-130	

Lab Batch #: 3076629

Sample: 611687-017 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 18:54

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0338	0.0300	113	70-130	

Lab Batch #: 3076629

Sample: 611687-018 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 19:13

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0340	0.0300	113	70-130	

Lab Batch #: 3076629

Sample: 611687-019 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 19:32

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0328	0.0300	109	70-130	
4-Bromofluorobenzene	0.0352	0.0300	117	70-130	

Lab Batch #: 3076629

Sample: 611687-020 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 19:51

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0325	0.0300	108	70-130	
4-Bromofluorobenzene	0.0357	0.0300	119	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076629

Sample: 611687-021 / SMP

Project ID: 212C-MD-01462

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 20:10

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0330	0.0300	110	70-130	
4-Bromofluorobenzene	0.0343	0.0300	114	70-130	

Lab Batch #: 3076629

Sample: 611687-022 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 20:29

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0340	0.0300	113	70-130	

Lab Batch #: 3076629

Sample: 611687-023 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 20:48

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0326	0.0300	109	70-130	
4-Bromofluorobenzene	0.0349	0.0300	116	70-130	

Lab Batch #: 3076629

Sample: 611687-024 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 21:07

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0326	0.0300	109	70-130	
4-Bromofluorobenzene	0.0328	0.0300	109	70-130	

Lab Batch #: 3076629

Sample: 611687-025 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 21:26

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0332	0.0300	111	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076558

Sample: 7670204-1-BLK / BLK

Project ID: 212C-MD-01462

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 01/21/19 10:51

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.7	100	87	70-135	
o-Terphenyl	43.6	50.0	87	70-135	

Lab Batch #: 3076629

Sample: 7670218-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 01/22/19 14:12

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	70-130	
4-Bromofluorobenzene	0.0272	0.0300	91	70-130	

Lab Batch #: 3076558

Sample: 7670204-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 01/21/19 11:12

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	100	118	70-135	
o-Terphenyl	55.4	50.0	111	70-135	

Lab Batch #: 3076629

Sample: 7670218-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 01/22/19 12:38

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	70-130	
4-Bromofluorobenzene	0.0311	0.0300	104	70-130	

Lab Batch #: 3076558

Sample: 7670204-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 01/21/19 11:31

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-135	
o-Terphenyl	53.1	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: Myox 8 State 4H

Work Orders : 611687,

Lab Batch #: 3076629

Sample: 7670218-1-BSD / BSD

Project ID: 212C-MD-01462

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 01/22/19 12:57

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	70-130	
4-Bromofluorobenzene	0.0312	0.0300	104	70-130	

Lab Batch #: 3076558

Sample: 611687-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 12:11

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.9	118	70-135	
o-Terphenyl	47.3	50.0	95	70-135	

Lab Batch #: 3076629

Sample: 611687-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 13:16

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0324	0.0300	108	70-130	
4-Bromofluorobenzene	0.0327	0.0300	109	70-130	

Lab Batch #: 3076558

Sample: 611687-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/21/19 12:30

### SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.9	118	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

Lab Batch #: 3076629

Sample: 611687-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 01/22/19 13:35

### 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	0.0361	0.0300	120	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: Myox 8 State 4H

Work Order #: 611687

Project ID: 212C-MD-01462

Analyst: SCM

Date Prepared: 01/22/2019

Date Analyzed: 01/22/2019

Lab Batch ID: 3076629

Sample: 7670218-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021B</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.000385	0.100	0.113	113	0.101	0.119	118	5	70-130	35	
Toluene	<0.000456	0.100	0.101	101	0.101	0.106	105	5	70-130	35	
Ethylbenzene	<0.000565	0.100	0.0962	96	0.101	0.101	100	5	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.188	94	0.202	0.197	98	5	70-130	35	
o-Xylene	<0.000344	0.100	0.0931	93	0.101	0.0976	97	5	70-130	35	

Analyst: CHE

Date Prepared: 01/18/2019

Date Analyzed: 01/18/2019

Lab Batch ID: 3076408

Sample: 7670021-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

## BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>Chloride by EPA 300</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Chloride	<5.00	250	252	101	250	256	102	2	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: Myox 8 State 4H**

**Work Order #:** 611687

**Project ID:** 212C-MD-01462

**Analyst:** CHE

**Date Prepared:** 01/18/2019

**Date Analyzed:** 01/18/2019

**Lab Batch ID:** 3076409

**Sample:** 7670022-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<5.00	250	253	101	250	246	98	3	90-110	20	

**Analyst:** ARM

**Date Prepared:** 01/21/2019

**Date Analyzed:** 01/21/2019

**Lab Batch ID:** 3076558

**Sample:** 7670204-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	927	93	1000	927	93	0	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1030	103	1000	1030	103	0	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: Myox 8 State 4H

Work Order #: 611687

Project ID: 212C-MD-01462

Lab Batch ID: 3076629

QC- Sample ID: 611687-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/22/2019

Date Prepared: 01/22/2019

Analyst: SCM

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	<0.000383	0.0994	0.0874	88	0.0998	0.0677	68	25	70-130	35	X
Toluene	<0.000453	0.0994	0.0745	75	0.0998	0.0779	78	4	70-130	35	
Ethylbenzene	<0.000561	0.0994	0.0657	66	0.0998	0.0739	74	12	70-130	35	X
m,p-Xylenes	<0.00101	0.199	0.129	65	0.200	0.153	77	17	70-130	35	X
o-Xylene	<0.000342	0.0994	0.0640	64	0.0998	0.0756	76	17	70-130	35	X

Lab Batch ID: 3076408

QC- Sample ID: 611687-005 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/18/2019

Date Prepared: 01/18/2019

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	200	250	439	96	250	449	100	2	90-110	20	

Lab Batch ID: 3076408

QC- Sample ID: 611687-009 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/18/2019

Date Prepared: 01/18/2019

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	653	248	889	95	248	864	85	3	90-110	20	X

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



# Form 3 - MS / MSD Recoveries



Project Name: Myox 8 State 4H

Work Order #: 611687

Project ID: 212C-MD-01462

Lab Batch ID: 3076409

QC- Sample ID: 611687-021 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/18/2019

Date Prepared: 01/18/2019

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	13.5	248	249	95	248	257	98	3	90-110	20	

Lab Batch ID: 3076409

QC- Sample ID: 611687-023 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/19/2019

Date Prepared: 01/18/2019

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	16.6	250	264	99	250	257	96	3	90-110	20	

Lab Batch ID: 3076558

QC- Sample ID: 611687-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/21/2019

Date Prepared: 01/21/2019

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)	<7.99	999	911	91	999	912	91	0	70-135	20	
Diesel Range Organics (DRO)	<8.12	999	1030	103	999	1030	103	0	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.

# Analysis Request of Custody Record



## Tetra Tech, Inc.

4000 N. Big Spring Street, Ste  
401 Midland, Texas 79705  
Tel (432) 682-4559  
Fax (432) 682-3946

Page

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Client Name: COG Site Manager: Clair Gonzales

Project Name: Myox 8 State 4H

Project Location: Eddy Co, NM Project #: 212C-MD-01462

Invoice to: COG - Ike Taveriez

Receiving Laboratory: Xenco Sampler Signature: Conner Moehring

Comments:

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS	FILTERED (Y/N)
		DATE	TIME	WATER	SOIL	HCL	HNO <sub>3</sub>		

AH #1 (0-1')		1/16/2019		X				1 N	
AH #1 (1-1.5')		1/16/2019		X				1 N	
AH #1 (2-2.5')		1/16/2019		X				1 N	
AH #2 (0-1')		1/16/2019		X				1 N	
AH #2 (1-1.5')		1/16/2019		X				1 N	
AH #2 (2-2.5')		1/16/2019		X				1 N	
AH #3 (0-1')		1/16/2019		X				1 N	
AH #3 (1-1.5')		1/16/2019		X				1 N	
AH #3 (2-2.5')		1/16/2019		X				1 N	
AH #4 (0-1')		1/16/2019		X				1 N	

Relinquished by: *[Signature]* Date: 1/17/19 Time: 1403  
Received by: *[Signature]* Date: 1/17/19 Time: 1403

Relinquished by: Date: Time: Received by: Date: Time:

### ANALYSIS REQUEST (Circle or Specify Method No.)

<input type="checkbox"/> BTEX 8021B	<input type="checkbox"/> BTEX 8260B
<input type="checkbox"/> TPH TX1005 (Ext to C35)	
<input type="checkbox"/> TPH 8015M (GRO - DRO - ORO - MRO)	
<input type="checkbox"/> PAH 8270C	
<input type="checkbox"/> Total Metals Ag As Ba Cd Cr Pb Se Hg	
<input type="checkbox"/> TCLP Metals Ag As Ba Cd Cr Pb Se Hg	
<input type="checkbox"/> TCLP Volatiles	
<input type="checkbox"/> TCLP Semi Volatiles	
<input type="checkbox"/> RCI	
<input type="checkbox"/> GC/MS Vol. 8260B / 624	
<input type="checkbox"/> GC/MS Semi. Vol. 8270C/625	
<input type="checkbox"/> PCB's 8082 / 608	
<input type="checkbox"/> NORM	
<input type="checkbox"/> PLM (Asbestos)	
<input type="checkbox"/> Chloride	
<input type="checkbox"/> Chloride Sulfate TDS	
<input type="checkbox"/> General Water Chemistry (see attached list)	
<input type="checkbox"/> Anion/Cation Balance	
<input type="checkbox"/> Hold	

### LAB USE ONLY

Sample Temperature

5-25-1  
4.1/18

### REMARKS:

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

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:



## Analysis Request of Chain of Custody Record



# Tetra Tech, Inc.

4000 N. Big Spring Street, Ste  
401 Midland, Texas 79705  
Tel (432) 682-4559  
Fax (432) 682-3946

Page

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3

Client Name:

COG

Site Manager:

Clair Gonzales

Project Name:

Myox 8 State 4H

Project Location:  
(county, state)

Eddy Co. NM

Project #:

212C-MD-01462

Invoice to:

COG - like Taveres

Receiving Laboratory:

Xenco

Sampler Signature:

Conner Moehring

Comments:

## SAMPLE IDENTIFICATION

LAB #  
(LAB USE ONLY)

## SAMPLING

YEAR: 2018

DATE

TIME

## MATRIX

## PRESERVATIVE METHOD

WATER  
SOIL  
HCL  
HNO<sub>3</sub>  
ICE  
None# CONTAINERS  
FILTERED (Y/N)

AH #4 (1-1.5')	1/16/2019		X							1 N	
AH #4 (2-2.5')	1/16/2019		X							1 N	
AH #5 (0-1')	1/16/2019		X							1 N	
AH #5 (1-1.5')	1/16/2019		X							1 N	
AH #5 (2-2.5')	1/16/2019		X							1 N	
AH #6 (0-1')	1/16/2019		X							1 N	
AH #7 (0-1')	1/16/2019		X							1 N	
AH #7 (1-1.5')	1/16/2019		X							1 N	
AH #7 (2-2.5')	1/16/2019		X							1 N	
Horizontal North #1	1/16/2019		X							1 N	

Relinquished by:

*Conner Moehring*  
Date: 1/17/19 Time: 1403

Received by:

*Clair Gonzales*  
Date: 1/17/19 Time: 1403

Relinquished by:

Date: Time:

Received by:

Date: Time:

Date: Time:

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## 3 of 3



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



**Client:** Tetra Tech- Midland

**Date/ Time Received:** 01/17/2019 02:03:00 PM

**Work Order #:** 611687

**Acceptable Temperature Range:** 0 - 6 degC

**Air and Metal samples Acceptable Range:** Ambient

**Temperature Measuring device used :** R8

### Sample Receipt Checklist

### Comments

#1 *Temperature of cooler(s)?	5.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

**Checklist completed by:**

*Brianna Teel*

Brianna Teel

Date: 01/17/2019

**Checklist reviewed by:**

*Jessica Kramer*

Jessica Kramer

Date: 01/18/2019



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

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January 23, 2019

CLAIR GONZALES

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: MYOX 8 STATE #4H

Enclosed are the results of analyses for samples received by the laboratory on 01/22/19 16:20.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



**Analytical Results For:**

TETRA TECH  
CLAIR GONZALES  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701  
Fax To: (432) 682-3946

Received: 01/22/2019  
Reported: 01/23/2019  
Project Name: MYOX 8 STATE #4H  
Project Number: 212C - MD - 01562  
Project Location: EDDY COUNTY, NM

Sampling Date: 01/22/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: T - 1 ( 2' ) (H900224-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	18400	16.0	01/23/2019	ND	400	100	400	3.92	

**Sample ID: T - 1 ( 3' ) (H900224-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	19800	16.0	01/23/2019	ND	400	100	400	3.92	

**Sample ID: T - 1 ( 4' ) (H900224-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	14000	16.0	01/23/2019	ND	416	104	400	0.00	QM-07

**Sample ID: T - 1 ( 6' ) (H900224-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10000	16.0	01/23/2019	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

TETRA TECH  
CLAIR GONZALES  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701  
Fax To: (432) 682-3946

Received: 01/22/2019  
Reported: 01/23/2019  
Project Name: MYOX 8 STATE #4H  
Project Number: 212C - MD - 01562  
Project Location: EDDY COUNTY, NM

Sampling Date: 01/22/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: T - 1 ( 8' ) (H900224-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6930	16.0	01/23/2019	ND	416	104	400	0.00	

**Sample ID: T - 2 ( 3' ) (H900224-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	01/23/2019	ND	416	104	400	0.00	

**Sample ID: T - 2 ( 4' ) (H900224-07)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	01/23/2019	ND	416	104	400	0.00	

**Sample ID: T - 2 ( 6' ) (H900224-08)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	01/23/2019	ND	416	104	400	0.00	

**Sample ID: T - 2 ( 8' ) (H900224-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	01/23/2019	ND	416	104	400	0.00	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 TETRA TECH  
 CLAIR GONZALES  
 901 WEST WALL STREET , STE 100  
 MIDLAND TX, 79701  
 Fax To: (432) 682-3946

 Received: 01/22/2019  
 Reported: 01/23/2019  
 Project Name: MYOX 8 STATE #4H  
 Project Number: 212C - MD - 01562  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 01/22/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: T - 2 ( 10' ) (H900224-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	01/23/2019	ND	416	104	400	0.00	

**Sample ID: T - 2 ( 12' ) (H900224-11)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	01/23/2019	ND	416	104	400	0.00	

**Sample ID: T - 2 ( 14' ) (H900224-12)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	01/23/2019	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

+ Cardinal cannot accept verbal change Place for written change in (575) 203-2326

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

+ Cardinal cannot accept verbal changes Please fav written changes to (575) 202-7376

# Analytical Report 612868

## for Tetra Tech- Midland

**Project Manager: Clair Gonzales**

**Myox 8 State 4H**

**212C-MD-01562**

**01-FEB-19**

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)

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-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)





01-FEB-19

Project Manager: **Clair Gonzales**

**Tetra Tech- Midland**

901 West Wall ST

Midland, TX 79701

Reference: XENCO Report No(s): **612868**

**Myox 8 State 4H**

Project Address: Eddy County, New Mexico

**Clair Gonzales:**

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) 612868. 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. 612868 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**

Project Assistant

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

*Certified and approved by numerous States and Agencies.*

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

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





## Sample Cross Reference 612868



**Tetra Tech- Midland, Midland, TX**

Myox 8 State 4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1 (AH#6).(0'-1')	S	01-29-19 00:00		612868-001
BH-1 (AH#6).(2'-3')	S	01-29-19 00:00		612868-002
BH-1 (AH#6).(4'-5')	S	01-29-19 00:00		612868-003
BH-1 (AH#6).6'-7')	S	01-29-19 00:00		612868-004
BH-1 (AH#6).9'-10')	S	01-29-19 00:00		612868-005
BH-1 (AH#6).14'-15')	S	01-29-19 00:00		612868-006
BH-1 (AH#6).(19'-20')	S	01-29-19 00:00		612868-007
BH-1 (AH#6).(24'-25')	S	01-29-19 00:00		Not Analyzed
BH-1 (AH#6).29'-30')	S	01-29-19 00:00		Not Analyzed



## CASE NARRATIVE

*Client Name: Tetra Tech- Midland*

*Project Name: Myox 8 State 4H*

Project ID: 212C-MD-01562  
Work Order Number(s): 612868

Report Date: 01-FEB-19  
Date Received: 01/30/2019

---

**Sample receipt non conformances and comments:**

None

---

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

None



# Certificate of Analysis Summary 612868

Tetra Tech- Midland, Midland, TX

Project Name: Myox 8 State 4H



**Project Id:** 212C-MD-01562  
**Contact:** Clair Gonzales  
**Project Location:** Eddy County, New Mexico

**Date Received in Lab:** Wed Jan-30-19 08:54 am  
**Report Date:** 01-FEB-19  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	612868-001	612868-002	612868-003	612868-004	612868-005	612868-006
	<i>Field Id:</i>	BH-1 (AH#6).(0'-1')	BH-1 (AH#6).(2'-3')	BH-1 (AH#6).(4'-5')	BH-1 (AH#6).6'-7')	BH-1 (AH#6).9'-10')	BH-1 (AH#6).14'-15')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jan-29-19 00:00	Jan-29-19 00:00	Jan-29-19 00:00	Jan-29-19 00:00	Jan-29-19 00:00	Jan-29-19 00:00
<b>Chloride by EPA 300 SUB: T104704215-18-28</b>	<i>Extracted:</i>	Jan-31-19 16:54	Jan-31-19 16:54	Jan-31-19 16:54	Jan-31-19 16:54	Jan-31-19 16:54	Jan-31-19 16:54
	<i>Analyzed:</i>	Jan-31-19 19:37	Jan-31-19 20:27	Jan-31-19 20:53	Jan-31-19 21:01	Jan-31-19 21:10	Jan-31-19 21:18
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		17600 100	2130 20.0	1180 20.0	410 20.0	199 20.0	124 20.0

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

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

Version: 1.9%

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 612868

Tetra Tech- Midland, Midland, TX

Project Name: Myox 8 State 4H



**Project Id:** 212C-MD-01562  
**Contact:** Clair Gonzales  
**Project Location:** Eddy County, New Mexico

**Date Received in Lab:** Wed Jan-30-19 08:54 am  
**Report Date:** 01-FEB-19  
**Project Manager:** Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b>	612868-007					
	<b>Field Id:</b>	BH-1 (AH#6).(19'-20')					
	<b>Depth:</b>						
	<b>Matrix:</b>	SOIL					
	<b>Sampled:</b>	Jan-29-19 00:00					
<b>Chloride by EPA 300 SUB: T104704215-18-28</b>	<b>Extracted:</b>	Jan-31-19 16:54					
	<b>Analyzed:</b>	Jan-31-19 21:27					
	<b>Units/RL:</b>	mg/kg RL					
Chloride		196 20.0					

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Version: 1.9%

Jessica Kramer  
Project Assistant



- 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



## BS / BSD Recoveries



**Project Name:** Myox 8 State 4H

**Work Order #:** 612868

**Project ID:** 212C-MD-01562

**Analyst:** JYM

**Date Prepared:** 01/31/2019

**Date Analyzed:** 01/31/2019

**Lab Batch ID:** 3077666

**Sample:** 7670820-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<10.0	100	101	101	100	99.5	100	1	80-120	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: Myox 8 State 4H

Work Order #: 612868

Project ID: 212C-MD-01562

Lab Batch ID: 3077666

QC- Sample ID: 612840-002 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/31/2019

Date Prepared: 01/31/2019

Analyst: JYM

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	714	100	801	87	100	801	87	0	80-120	20	

Lab Batch ID: 3077666

QC- Sample ID: 612868-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 01/31/2019

Date Prepared: 01/31/2019

Analyst: JYM

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 <01/31/2019 20:11>	17600	2000	19500	95	2000	19300	85	1	80-120	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.

# Analysis Request of Chain of Custody Record



## Tetra Tech, Inc.

900 West Wall Street, Ste 100  
Midland, Texas 79701  
Tel (432) 682-4559  
Fax (432) 682-3946

Client Name: COG		Site Manager: Clair Gonzales	
Project Name: Myox 8 State 4H			
Project Location: Eddy County, New Mexico		Project #: 212C-MD-01562	
Invoice to: COG - Ike Taveraz		Receiving Laboratory: Xenco	
Comments:		Sampler Signature:	

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING Volume/Amount		MATRIX	PRESERVATIVE METHOD					# CONTAINERS	FILTERED (Y/N)	
		DATE	TIME		WATER	SOIL	HCL	HNO <sub>3</sub>	ICE			None
	BH-1 (AH #6), (0'-1')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (2'-3')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (4'-5')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (6'-7')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (9'-10')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (14'-15')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (19'-20')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (24'-25')	1/29/2019		X				X			1	N
	BH-1 (AH #6), (29'-30')	1/29/2019		X				X			1	N

LAB USE ONLY	Retinquinshed by:	Date: 1-30-19	Time: 0900	Received by:	Date: 1/30/19	Time: 0854
	Retinquinshed by:	Date:	Time:	Received by:	Date:	Time:
	Retinquinshed by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST (Circle or Specify Method No.)	
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 300.0	
Chloride Sulfate TDS	
General Water Chemistry (see attached list)	
Anion/Cation Balance	
TPH 8015R	
HOLD	

REMARKS:	<input type="checkbox"/> STANDARD <input checked="" type="checkbox"/> RUSH: Same Day 24 hr 48 hr <b>72 hr</b> <input type="checkbox"/> Rush Charges Authorized <input type="checkbox"/> Special Report Limits or TRRP Report
----------	---

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

## Inter-Office Shipment

**IOS Number : 121588**

Date/Time: 01.30.2019 16:09 Created by: Katie Lowe

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave, Midland TX 79701

Lab# To: **Houston**

Air Bill No.: 774354353240


E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
612868-001	S	BH-1 (AH#6).(0'-1')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	02.01.2019	02/26/19	JKR	CL	
612868-002	S	BH-1 (AH#6).(2'-3')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	02.01.2019	02/26/19	JKR	CL	
612868-003	S	BH-1 (AH#6).(4'-5')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	02.01.2019	02/26/19	JKR	CL	
612868-004	S	BH-1 (AH#6).6'-7')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	02.01.2019	02/26/19	JKR	CL	
612868-005	S	BH-1 (AH#6).9'-10')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	02.01.2019	02/26/19	JKR	CL	
612868-006	S	BH-1 (AH#6).14'-15')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	02.01.2019	02/26/19	JKR	CL	
612868-007	S	BH-1 (AH#6).(19'-20')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	02.01.2019	02/26/19	JKR	CL	
612868-008	S	BH-1 (AH#6).(24'-25')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	HOLD	02/26/19	JKR	CL	
612868-009	S	BH-1 (AH#6).29'-30')	01.29.2019 00:00	E300_CL	Chloride by EPA 300	HOLD	02/26/19	JKR	CL	

### Inter Office Shipment or Sample Comments:

Relinquished By:   
Katie Lowe

Date Relinquished: 01/30/2019

Received By:   
Rene Vandenberghe

Date Received: 01/31/2019 10:00

Cooler Temperature: 2.8





# XENCO Laboratories



## Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 121588

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-068

Sent By: Katie Lowe

Date Sent: 01/30/2019 04:09 PM

Received By: Rene Vandenberghe

Date Received: 01/31/2019 10:00 AM

### Sample Receipt Checklist

### Comments

#1 *Temperature of cooler(s)?	2.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#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:

R. C. Vandenberghe  
Rene Vandenberghe

Date: 01/31/2019

## Appendix D

## Eddy Area, New Mexico

### RE—Reagan-Upton association, 0 to 9 percent slopes

#### Map Unit Setting

*National map unit symbol:* 1w5d

*Elevation:* 1,100 to 5,400 feet

*Mean annual precipitation:* 6 to 14 inches

*Mean annual air temperature:* 60 to 64 degrees F

*Frost-free period:* 180 to 240 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Reagan and similar soils:* 70 percent

*Upton and similar soils:* 25 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Reagan

##### Setting

*Landform:* Alluvial fans, fan remnants

*Landform position (three-dimensional):* Rise

*Down-slope shape:* Linear, convex

*Across-slope shape:* Linear

*Parent material:* Alluvium and/or eolian deposits

##### Typical profile

*H1 - 0 to 8 inches:* loam

*H2 - 8 to 60 inches:* loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):*

Moderately high to high (0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 40 percent

*Salinity, maximum in profile:* Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 1.0

*Available water storage in profile:* Moderate (about 8.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 2e

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* B

*Ecological site:* Loamy (R070DY153NM)

*Hydric soil rating:* No

## **Description of Upton**

### **Setting**

*Landform:* Ridges, fans

*Landform position (three-dimensional):* Side slope, rise

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Residuum weathered from limestone

### **Typical profile**

*H1 - 0 to 9 inches:* gravelly loam

*H2 - 9 to 13 inches:* gravelly loam

*H3 - 13 to 21 inches:* cemented

*H4 - 21 to 60 inches:* very gravelly loam

### **Properties and qualities**

*Slope:* 0 to 9 percent

*Depth to restrictive feature:* 7 to 20 inches to petrocalcic

*Natural drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately high (0.01 to 0.60 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 75 percent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 1.0

*Available water storage in profile:* Very low (about 1.4 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* D

*Ecological site:* Shallow Loamy (R070DY159NM)

*Hydric soil rating:* No

## **Minor Components**

### **Pima**

*Percent of map unit:*

*Ecological site:* Bottomland (R042XC017NM)

*Hydric soil rating:* No

### **Atoka**

*Percent of map unit:*

*Ecological site:* Loamy (R042XC007NM)

*Hydric soil rating:* No

## **Data Source Information**

Soil Survey Area: Eddy Area, New Mexico

Survey Area Data: Version 14, Sep 12, 2018



# NMSLO Seed Mix

# Loamy (L)

## LOAMY (L) SITES SEED MIXTURE:

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
<b>Grasses:</b>			
Black grama	VNS, Southern	1.0	D
Blue grama	Lovington	1.0	D
Sideoats grama	Vaughn, El Reno	4.0	F
Sand dropseed	VNS, Southern	2.0	S
Alkali sacaton	VNS, Southern	1.0	
Little bluestem	Cimarron, Pastura	1.5	F
<b>Forbs:</b>			
Firewheel ( <i>Gaillardia</i> )	VNS, Southern	1.0	D
<b>Shrubs:</b>			
Fourwing saltbush	Marana, Santa Rita	1.0	D
Common winterfat	VNS, Southern	0.5	F
Total PLS/acre		18.0	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box

VNS = Variety Not Stated, PLS = Pure Live Seed

- Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).
- VNS, Southern – Seed should be from a southern latitude collection of this species.
- Double seed application rate for broadcast or hydroseeding.
- If one species is not available, contact the SLO for an approved substitute; alternatively the SLO may require other species proportionately increased.
- Additional information on these seed species can be found on the USDA Plants Database website at <http://plants.usda.gov>.

