

## SITE INFORMATION

**Report Type: Closure Report      1RP-5159**

### General Site Information:

Site:	Pygmy 27 State #001H Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit L	Sec. 27	T 21S	R 33E		
Lease Number:	API No. 30-025-40352					
County:	Lea County					
GPS:	32.4471062			-103.5665927		
Surface Owner:	Private					
Directions:	From the intersection of Highway 8 and Highway 176, travel west on Highway 76 for approximately 13.95 miles. Turn left (south) onto lease road. Travel approximately 3.7 miles to lease road intersection. Turn right (west) onto lease road. Travel approximately 4.4 miles and turn right (north) onto lease road. The location is approximately 250 feet north on lease road to the right (east).					

### Release Data:

<b>Date Released:</b>	8/13/2018
<b>Type Release:</b>	Produced Water
<b>Source of Contamination:</b>	Ruptured Flowline
<b>Fluid Released:</b>	50 bbls
<b>Fluids Recovered:</b>	0 bbls

### Official Communication:

<b>Name:</b>	Ike Tavarez		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>	102' below surface
<b>Karst Potential:</b>	Low

### Recommended Remedial Action Levels (RRALs)

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



March 15, 2019

Oil Conservation Division, District 1  
1625 North French Drive  
Hobbs, New Mexico 88240

**Re: Closure Report for the COG Operating, LLC, Pygmy 27 #001H Battery, Unit L, Section 27, Township 21 South, Range 33 East, Lea County, New Mexico. 1RP-5159**

To Whom it May Concern:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to remediate a release that occurred at the Pygmy 27 #001 H Battery, Unit L, Section 27, Township 21 South, Range 33 East, Lea County, New Mexico (Site). The spill site coordinates are 32.4471062°, -103.5665927°. 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 August 13, 2018. Approximately 50 barrels of produced water were released due to a ruptured flowline. The release occurred in the pasture adjacent to a lease road, and impacted an area measuring approximately 290' X 75'. 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 low karst potential area. However, one private water well was identified within 500 feet north of the release. The nearest well, CP 01355 POD1, is listed in the New Mexico Office of the State Engineers website in Section 27, Township 21 South, Range 33 East and has a reported depth to groundwater of 582 feet below ground surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is 140' – 175' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

901 W. Wall Street, Suite 100, Midland, TX 79701

Tel 432.682.4559 [www.tetratech.com](http://www.tetratech.com)



## Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, 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 – Performed by HRL Compliance Solutions, Inc.

On August 27, 2018, HRL Compliance Solutions, Inc. (HRL) personnel were onsite to assess and define the release area. A total of seven (7) auger holes (S1 through S7) were installed to depths of six to eight feet below surface. 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. The soil assessment results from HRL are presented in Table 1.

Referring to Table 1, the areas of auger holes (S1 through S7) showed benzene and total BTEX below the laboratory reporting limits. The TPH concentrations for the surface samples of S1, S2, and S5 exceeded the RRAL with concentrations of 500 mg/kg, 1,310 mg/kg, and 1,320 mg/kg and declined with depth at 1.0' below the surface, all showing non-detect. All seven (7) auger holes exhibited chloride concentrations above the RRAL. The vertical delineation of chlorides was observed to be six to eight feet below the ground surface.

A remediation plan was submitted by HRL to NMOCD on October 26, 2018 and was approved on January 14, 2019.

## Remediation Activities

Once the remediation plan was approved by the NMOCD, Tetra Tech personnel were onsite from February 4 - 14, 2019, to evaluate and supervise the remediation activities that were above the RRALs and to collect confirmation and sidewall samples. A total of thirteen (13) bottom hole composite samples and seventeen (17) composite sidewall samples were collected to ensure the proper removal of impacted soils. The area of bottom hole-1 through bottom hole-13 was excavated to 5'-10' below surface. The samples were submitted to the laboratory to be analyzed for TPH method 8015 extended, BTEX method 8021B, and Chloride by EPA Method 300.0. The sampling results are summarized in Table 2. The excavation depths and sample locations are shown in Figure 4.

The area around the Enterprise pipeline had a surface removal completed, followed by field screening data for chloride concentrations. All field data had reported concentrations below the 600 mg/kg and was left in place due to safety concerns.

**TETRA TECH**

Referring to Table 2, all the samples analyzed showed benzene, TPH, and total BTEX below the laboratory reporting limits. Additionally, none of the bottom hole or sidewall samples collected showed chloride concentrations above the 600 mg/kg RRAL with concentrations ranging from <16.0 mg/kg to 288 mg/kg.

Approximately 2,580 cubic yards of material was excavated and transported offsite for proper disposal. The area was then backfilled with clean material to surface grade.

#### Revegetation Plan

The area will be seeded with a Bureau of Land Management (BLM) seed mixture for shallow sites 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 Bureau of Land Management (BLM) Seed Mixture 2 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 BLM 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 BLM seed mixture details and corresponding pounds pure live seed per acre are included in Appendix D.

#### **Conclusion**

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

Respectfully submitted,  
TETRA TECH

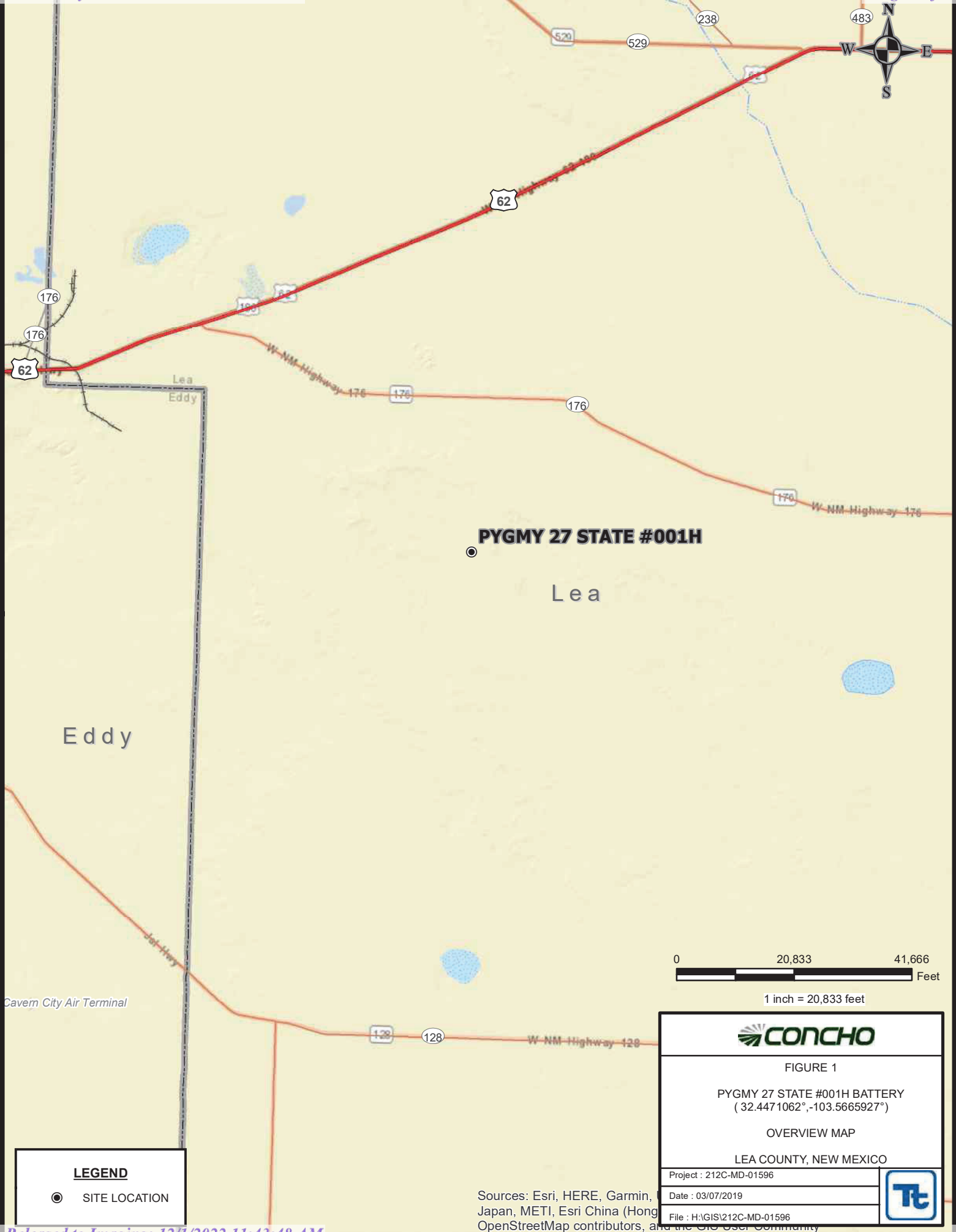
A handwritten signature in blue ink that reads "Kayla Taylor".

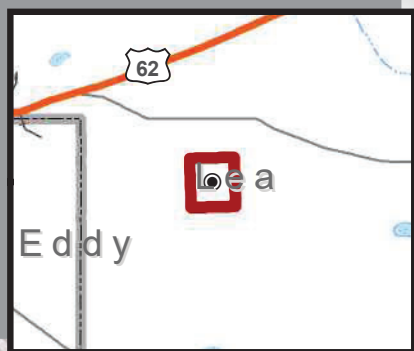
Kayla Taylor,  
Project Manager

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

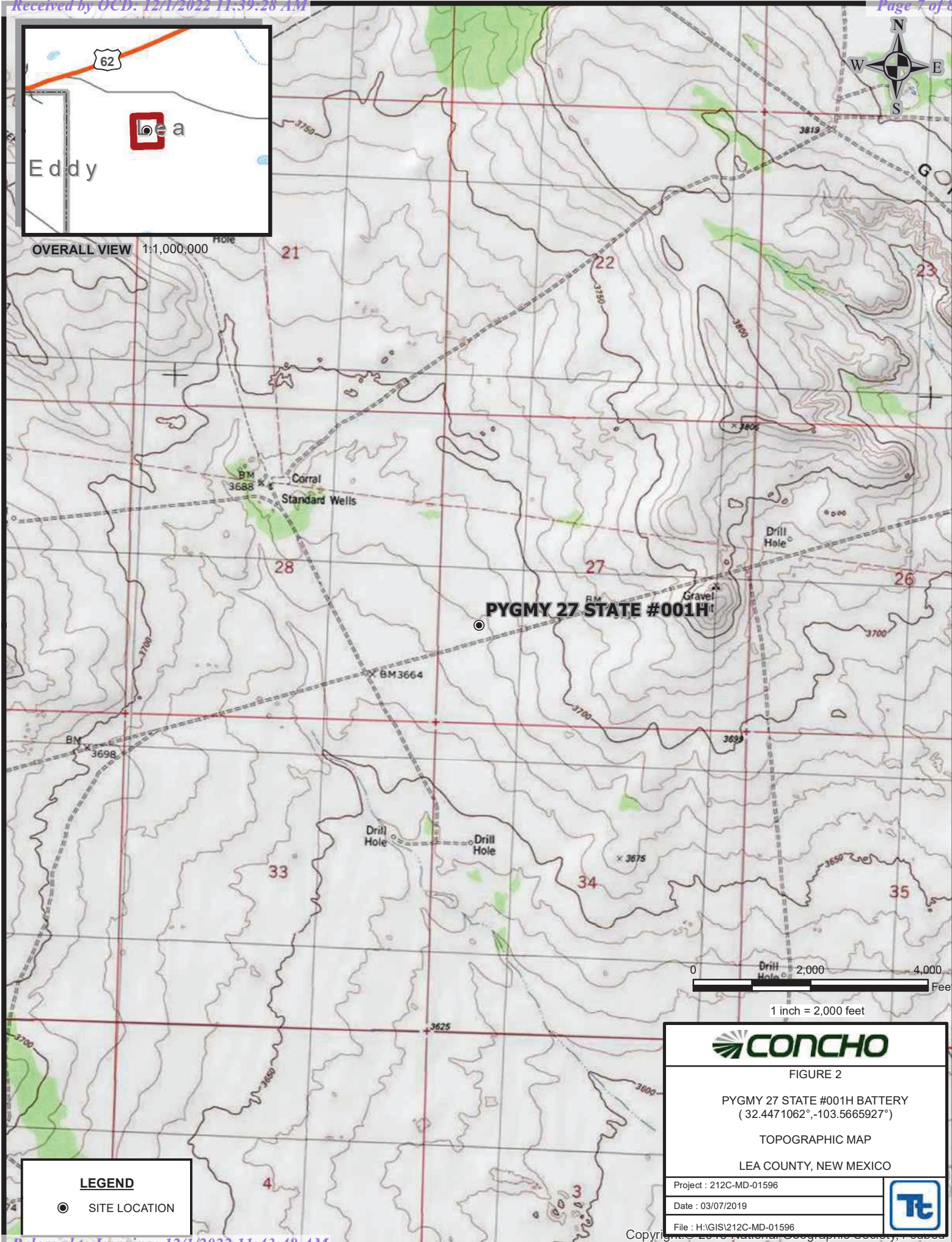


## Figures





OVERALL VIEW 1:1,000,000



**LEGEND**

● SITE LOCATION



FIGURE 2

PYGMY 27 STATE #001H BATTERY  
(32.4471062°, -103.5665927°)

TOPOGRAPHIC MAP

LEA COUNTY, NEW MEXICO

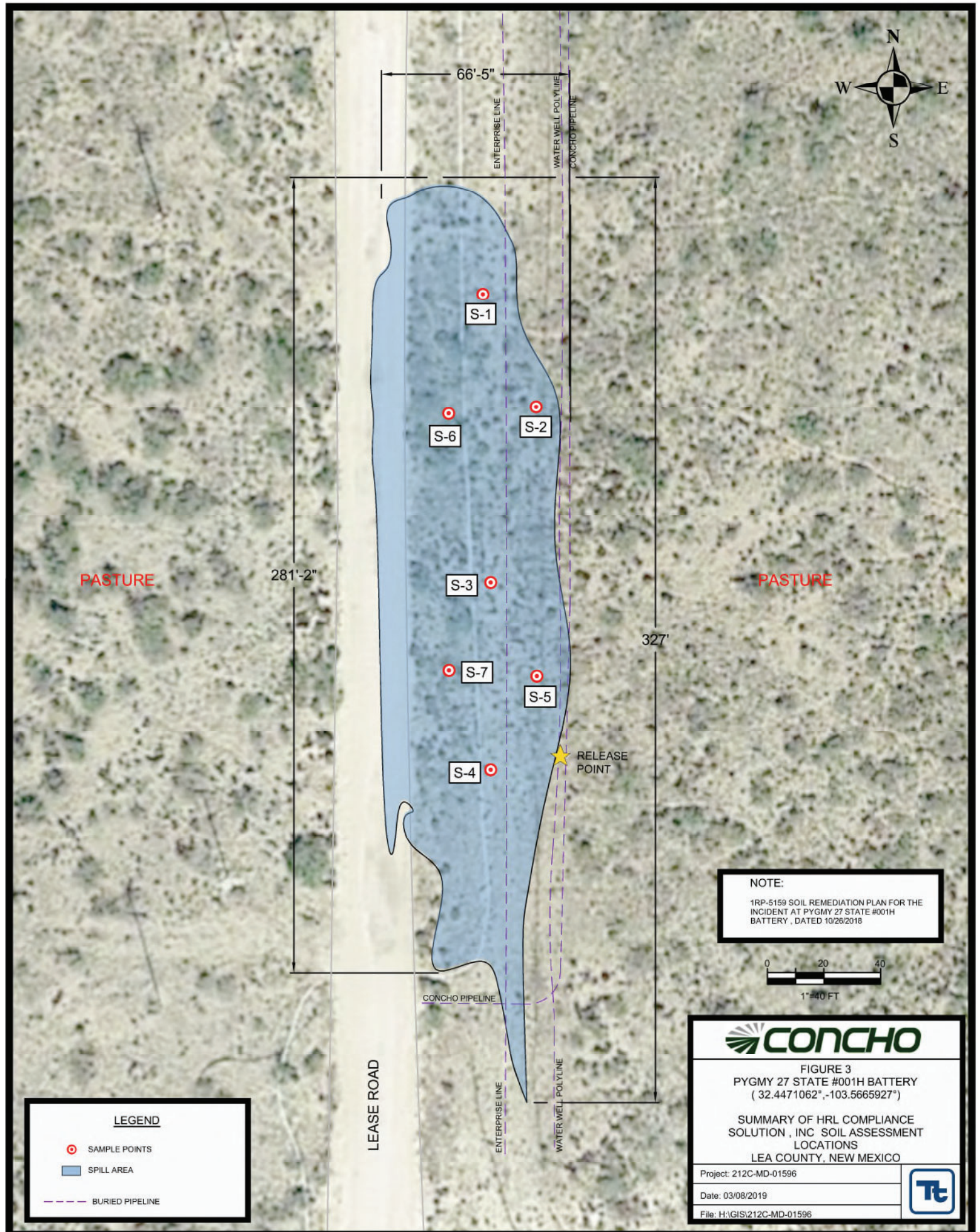
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Date : 03/07/2019

File : H:\GIS\212C-MD-01596

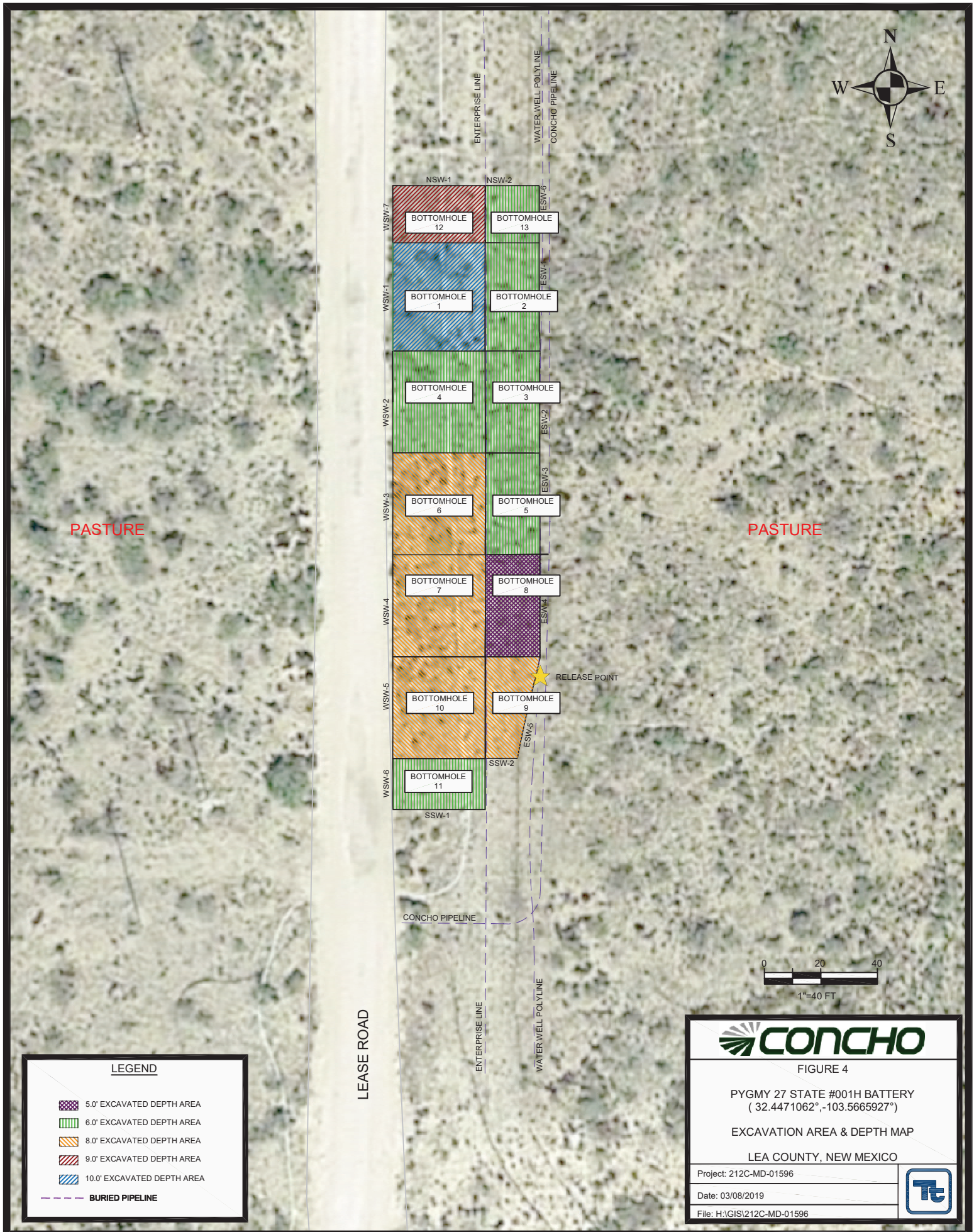






Drawn By: MISTI MORGAN





## Tables

Table 1  
COG  
Summary of HRL Compliance Solutions, Inc. Soil Assessment Sample Locations  
Pygmy 27 State #001H Battery (8/13/18)  
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH				BTEX						
			In Situ	Removed	TPH (GRO) (mg/kg)	TPH (DRO) (mg/kg)	TPH (ORO) (mg/kg)	Total TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
S1	8/31/2019	Surface		X	ND	280	220	500	ND	-	-	-	ND	6,100	
	8/31/2019	1		X	ND	ND	ND	ND	ND	-	-	-	ND	11,000	
	8/31/2019	2		X	-	-	-	-	-	-	-	-	-	10,000	
	8/31/2019	3		X	-	-	-	-	-	-	-	-	-	11,000	
	8/31/2019	4		X	-	-	-	-	-	-	-	-	-	2,500	
	8/31/2019	6		X	-	-	-	-	-	-	-	-	-	800	
	8/31/2019	8		X	-	-	-	-	-	-	-	-	-	200	
S2	8/31/2019	Surface		X	ND	760	550	1,310	ND	-	-	-	ND	8,700	
	8/31/2019	1		X	ND	ND	ND	ND	ND	-	-	-	ND	8,200	
	8/31/2019	2		X	-	-	-	-	-	-	-	-	-	8,800	
	8/31/2019	3		X	-	-	-	-	-	-	-	-	-	8,100	
	8/31/2019	4		X	-	-	-	-	-	-	-	-	-	4,100	
	8/31/2019	6		X	-	-	-	-	-	-	-	-	-	66	
	8/31/2019	8		X	-	-	-	-	-	-	-	-	-	-	
S3	8/31/2019	Surface		X	ND	ND	ND	ND	ND	-	-	-	ND	7,400	
	8/31/2019	1		X	ND	ND	ND	ND	ND	-	-	-	ND	8,700	
	8/31/2019	2		X	-	-	-	-	-	-	-	-	-	8,600	
	8/31/2019	3		X	-	-	-	-	-	-	-	-	-	4,300	
	8/31/2019	4		X	-	-	-	-	-	-	-	-	-	3,300	
	8/31/2019	6		X	-	-	-	-	-	-	-	-	-	78	
S4	8/31/2019	Surface		X	ND	20	ND	20	ND	-	-	-	ND	6,700	
	8/31/2019	1		X	ND	ND	ND	ND	ND	-	-	-	ND	8,900	
	8/31/2019	2		X	-	-	-	-	-	-	-	-	-	8,300	
	8/31/2019	3		X	-	-	-	-	-	-	-	-	-	11,000	
	8/31/2019	4		X	-	-	-	-	-	-	-	-	-	5,700	
	8/31/2019	6		X	-	-	-	-	-	-	-	-	-	910	
S5	8/31/2019	Surface		X	ND	700	620	1,320	ND	-	-	-	ND	8,700	
	8/31/2019	1		X	ND	ND	ND	ND	ND	-	-	-	ND	7,200	
	8/31/2019	2		X	-	-	-	-	-	-	-	-	-	860	
	8/31/2019	3		X	-	-	-	-	-	-	-	-	-	59	
	8/31/2019	4		X	-	-	-	-	-	-	-	-	-	ND	
	8/31/2019	6		X	-	-	-	-	-	-	-	-	-	36	
S6	8/31/2019	Surface		X	ND	ND	ND	ND	ND	-	-	-	ND	10,000	
	8/31/2019	1		X	ND	ND	ND	ND	ND	-	-	-	ND	8,800	
	8/31/2019	2		X	-	-	-	-	-	-	-	-	-	9,100	
	8/31/2019	3		X	-	-	-	-	-	-	-	-	-	8,500	
	8/31/2019	4		X	-	-	-	-	-	-	-	-	-	2,400	
	8/31/2019	6		X	-	-	-	-	-	-	-	-	-	250	



Table 1  
COG  
Summary of HRL Compliance Solutions, Inc. Soil Assessment Sample Locations  
Pygmy 27 State #001H Battery (8/13/18)  
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH			BTEX				Chloride (mg/kg)		
			In Situ	Removed	TPH (GRO) (mg/kg)	TPH (DRO) (mg/kg)	TPH (ORO) (mg/kg)	Total TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)		Xylenes (mg/kg)	Total BTEX (mg/kg)
S7	8/31/2019	Surface		X	ND	ND	ND	ND	ND	-	-	-	ND	3,500
	9/1/2019	1		X	ND	ND	ND	ND	ND	-	-	-	ND	8,600
	9/2/2019	2		X	-	-	-	-	-	-	-	-	-	8,600
	9/3/2019	3		X	-	-	-	-	-	-	-	-	-	9,800
	9/4/2019	4		X	-	-	-	-	-	-	-	-	-	7,200
	9/5/2019	6		X	-	-	-	-	-	-	-	-	-	5,900
	9/6/2019	8		X	-	-	-	-	-	-	-	-	-	48

## NOTES:

Feet  
ft  
Parts per million  
PPM  
Milligrams per kilogram  
mg/kg  
TPH  
Total Petroleum Hydrocarbons  
GRO  
Gasoline Range Organics

DRO Diesel Range Organics  
ORO Oil Range Organics  
ND Not Detected  
NA Not Analyzed

**BOLD** Exceeds Threshold Concentration

Data acquired from HRL Compliance Solutions, Inc. - 1RP-5159 Soil Remediation Plan for the Incident at the Pygmy 27 State #001H Battery, Dated 10/26/2018

**Table 2**  
**COG**  
**Summary of Soil Sample Locations**  
**Pygmy 27 State #001H Battery (8/13/18)**  
**Lea County, New Mexico**

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH			BTEX				Chlorides			
			In Situ	Removed	TPH (GRO) (mg/kg)	TPH (DRO) (mg/kg)	TPH (ORO) (mg/kg)	Total TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (ppm)	Chloride (mg/kg)
Bottom Hole -1	2/4/2019	10	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	140	80.0
Bottom Hole -2	2/5/2019	6	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	218	176
Bottom Hole -3	2/5/2019	6	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	65.1	48.0
Bottom Hole -4	2/6/2019	6	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	415	512
Bottom Hole -5	2/7/2019	6	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	335	288
Bottom Hole -6	2/11/2019	8	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	201	176
Bottom Hole -7	2/11/2019	8	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	117	48.0
Bottom Hole -8	2/8/2019	5	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	100	48.0
Bottom Hole -9	2/8/2019	8	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	94.5	48.0
Bottom Hole -10	2/11/2019	8	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	101	48.0
Bottom Hole -11	2/11/2019	6	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	110	64.0
Bottom Hole -12	2/11/2019	9	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	142	64.0
Bottom Hole -13	2/11/2019	6	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	139	112
NWS-1	2/12/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	105	16.0
NSW-2	2/12/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	50.1	48.0
SSW-1	2/13/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	91.5	32.0
SSW-2	2/13/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	113	32.0
WSW-1	2/4/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	293	272
WSW-2	2/6/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	383	96.0
WSW-3	2/11/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	133	80.0
WSW-4	2/11/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	283	224.0
WSW-5	2/11/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	65	64.0
WSW-6	2/11/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	58.1	32.0
WSW-7	2/11/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80	32.0
ESW-1	2/5/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	113	64.0
ESW-2	2/6/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	71.2	48.0
ESW-3	2/7/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	75.0	32.0
ESW-4	2/8/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	201	64.0
ESW-5	2/8/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	154	64.0
ESW-6	2/11/2019	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	154	32.0

## NOTES:

ft	Feet		
PPM	Parts per million		Diesel Range Organics
mg/kg	Milligrams per kilogram		Oil Range Organics
TPH	Total Petroleum Hydrocarbons		The identification of the analyte is acceptable; the reported value is an estimate.
GRO	Gasoline Range Organics		The same analyte is found in the associated blank.
			The sample matrix interfered with the ability to make any accurate determination; spike value is low

## Photos

COG  
Pygmy 27 #001H Battery (8/13/18)  
Lea County, New Mexico



Area of Excavation – View South



Area of Excavation – View South

COG  
Pygmy 27 #001H Battery (8/13/18)  
Lea County, New Mexico



Area of Excavation – View North



Area of Excavation – View Northwest

## Appendix A



Incident ID	
District RP	1RP-5159
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: Ike Tavaréz Title: Senior HSE Supervisor  
Signature:  Date: 3/15/2019  
email: itavaréz@concho.com Telephone: 432-685-2573

### OCD Only

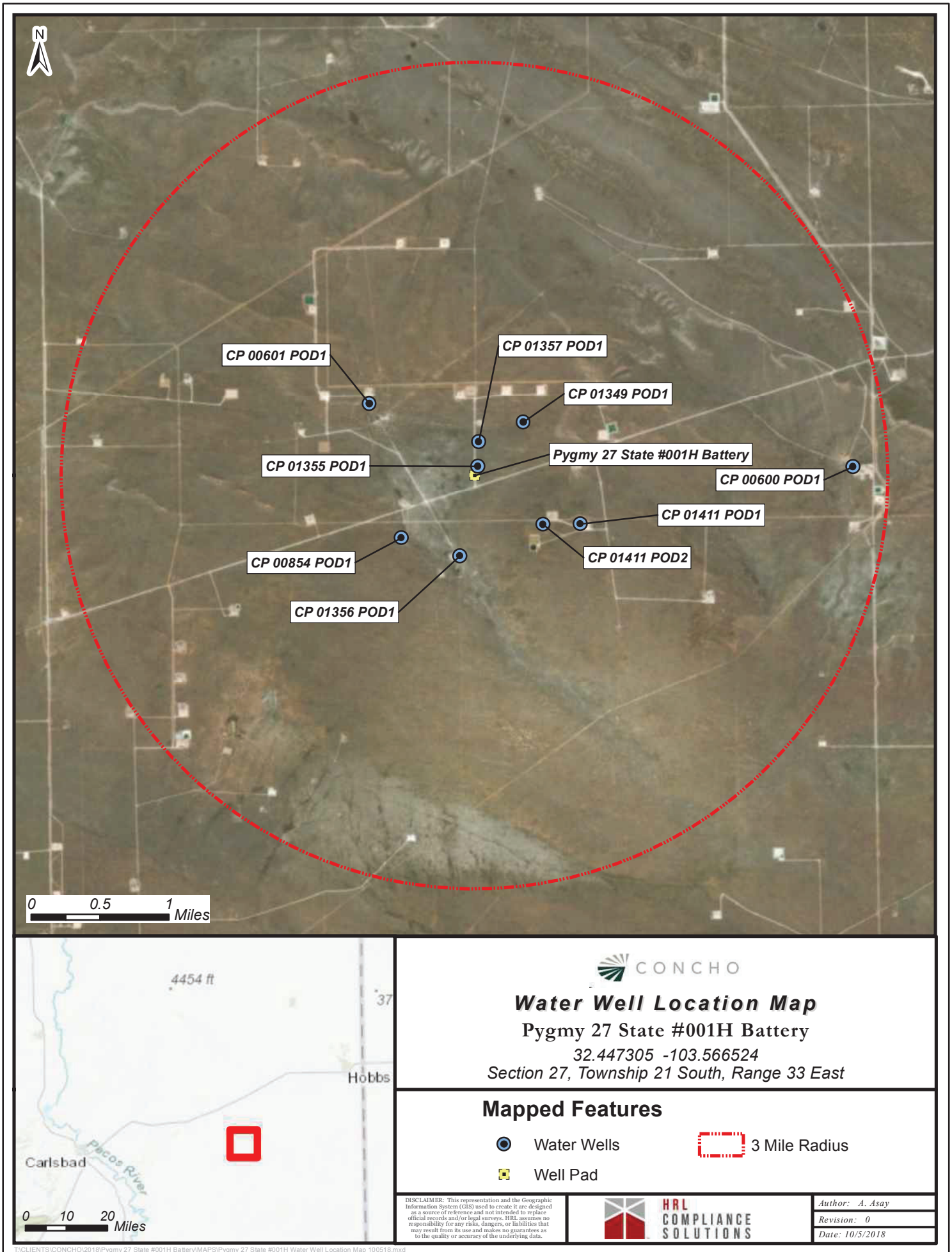
Received by: \_\_\_\_\_ Date: \_\_\_\_\_

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: 12/1/2022  
Printed Name: Brittany Hall Title: Environmental Specialist



## Appendix B





# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">CP 01355 POD1</a>	CP	LE		2	1	3	27	21S	33E	634773	3591061	165	1192	582	610
<a href="#">CP 01357 POD1</a>	CP	LE		4	3	1	27	21S	33E	634782	3591347	449	1286	578	708
<a href="#">CP 01349 POD1</a>	CP	LE		2	3	1	27	21S	33E	635304	3591576	882	1188	572	616
<a href="#">CP 01356 POD1</a>	CP	LE		4	2	2	33	21S	33E	634560	3590014	903	1098	555	543
<a href="#">CP 01411 POD2</a>	CP	LE			1	2	34	21S	33E	635534	3590380	951	1125		
<a href="#">CP 00854 POD1</a>	CP	LE		1	1	2	33	21S	33E	633879	3590223	1093	950	600	350
<a href="#">CP 01411 POD1</a>	CP	LE			2	2	34	21S	33E	635968	3590386	1333	1149		
<a href="#">CP 00601 POD1</a>	CP	LE			2	1	28	21S	33E	633502	3591791*	1523	223		
<a href="#">CP 00600 POD1</a>	CP	LE			2	4	25	21S	33E	639152	3591054*	4416	65		

Average Depth to Water: **577 feet**

Minimum Depth: **555 feet**

Maximum Depth: **600 feet**

Record Count: 9

UTMNAD83 Radius Search (in meters):

**Easting (X):** 634737.83

**Northing (Y):** 3590900.15

**Radius:** 4828

\*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.

10/4/18 4:14 PM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

# Pygmy 27 #001H Battery

First Potential Map

Released to Imaging: 12/1/2022 11:43:48 AM

Received by QCD: 12/1/2022 11:39:28 AM

## Legend

- High
- Low
- Pygmy 27 #001H Battery

Hobbs Hwy

38

243

62

176

8

Pygmy 27 #001H Battery

128

Jal Hwy

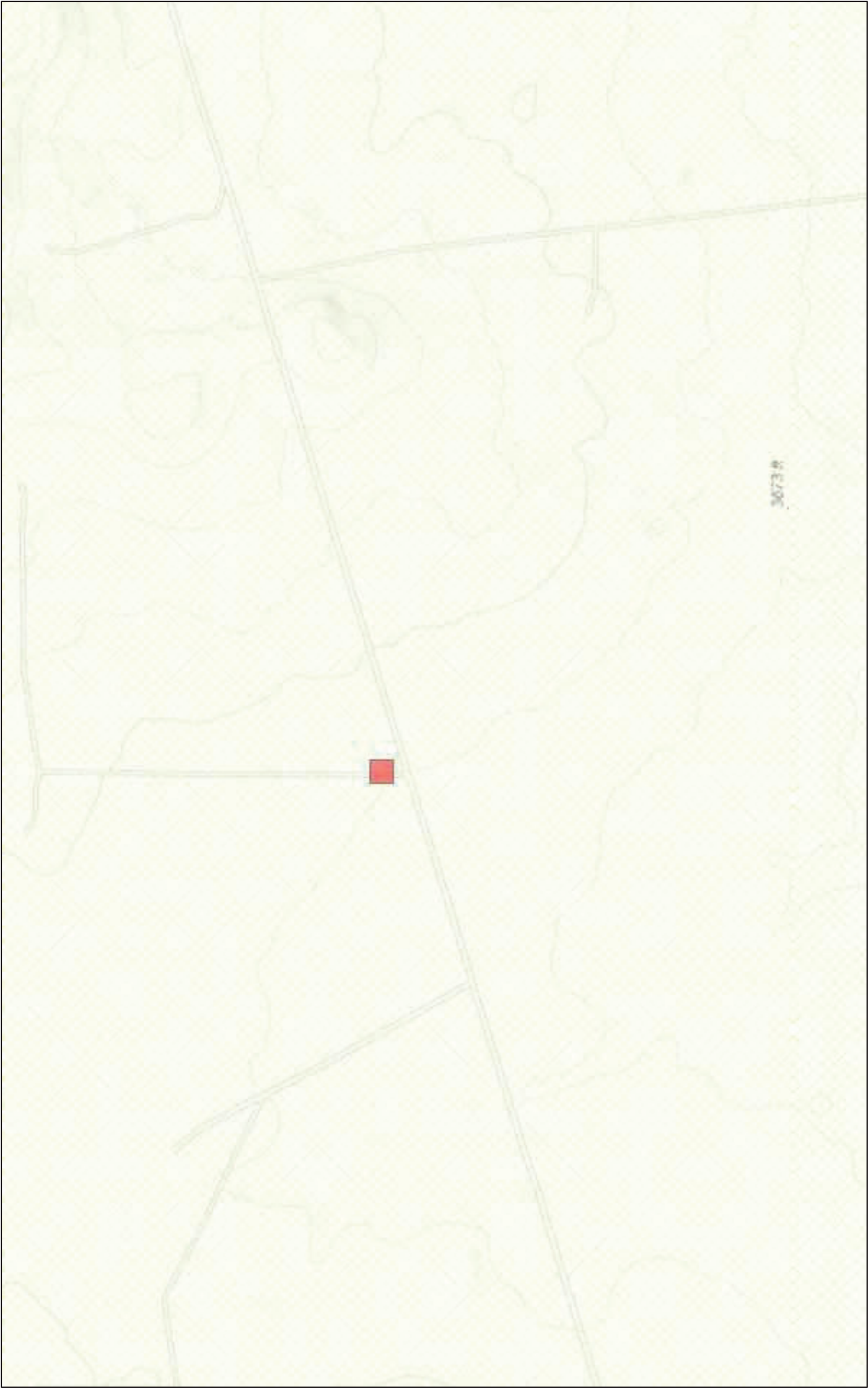
Google earth

© 2013 Google



10 mi

New Mexico NFHL Data



March 13, 2019

1:18,056  
0 0.15 0.3 0.6 mi  
0 0.25 0.5 1 km

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

nmflood.org is made possible through a collaboration with NMDHSEM, EDAC, and FEMA  
This is a non-regulatory product for informational use only. Please consult your local floodplain administrator for further information.

## Appendix C





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

---

February 11, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: PYGMY 27

Enclosed are the results of analyses for samples received by the laboratory on 02/04/19 16:30.

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





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

**Analytical Results For:**

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

Received: 02/04/2019  
 Reported: 02/11/2019  
 Project Name: PYGMY 27  
 Project Number: NONE GIVEN  
 Project Location: COG - LEA CO NM

Sampling Date: 02/04/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM HOLE -1 ( COMP 10' ) (H900396-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/09/2019	ND	2.20	110	2.00	2.94		
Toluene*	<0.050	0.050	02/09/2019	ND	2.21	111	2.00	3.35		
Ethylbenzene*	<0.050	0.050	02/09/2019	ND	2.14	107	2.00	2.55		
Total Xylenes*	<0.150	0.150	02/09/2019	ND	6.14	102	6.00	2.75		
Total BTEX	<0.300	0.300	02/09/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/05/2019	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/09/2019	ND	199	99.3	200	5.04	
DRO >C10-C28*	<10.0	10.0	02/09/2019	ND	204	102	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	02/09/2019	ND					

Surrogate: 1-Chlorooctane 91.8 % 41-142

Surrogate: 1-Chlorooctadecane 94.4 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/04/2019  
 Reported: 02/11/2019  
 Project Name: PYGMY 27  
 Project Number: NONE GIVEN  
 Project Location: COG - LEA CO NM

Sampling Date: 02/04/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: NSW -1 ( COMP 4' ) (H900396-02)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/09/2019	ND	2.20	110	2.00	2.94		
Toluene*	<0.050	0.050	02/09/2019	ND	2.21	111	2.00	3.35		
Ethylbenzene*	<0.050	0.050	02/09/2019	ND	2.14	107	2.00	2.55		
Total Xylenes*	<0.150	0.150	02/09/2019	ND	6.14	102	6.00	2.75		
Total BTEX	<0.300	0.300	02/09/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/05/2019	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/09/2019	ND	199	99.3	200	5.04	
DRO >C10-C28*	<10.0	10.0	02/09/2019	ND	204	102	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	02/09/2019	ND					

Surrogate: 1-Chlorooctane 86.8 % 41-142

Surrogate: 1-Chlorooctadecane 89.0 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/04/2019  
 Reported: 02/11/2019  
 Project Name: PYGMY 27  
 Project Number: NONE GIVEN  
 Project Location: COG - LEA CO NM

Sampling Date: 02/04/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: WSW -1 ( COMP 4' ) (H900396-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/09/2019	ND	2.20	110	2.00	2.94	
Toluene*	<0.050	0.050	02/09/2019	ND	2.21	111	2.00	3.35	
Ethylbenzene*	<0.050	0.050	02/09/2019	ND	2.14	107	2.00	2.55	
Total Xylenes*	<0.150	0.150	02/09/2019	ND	6.14	102	6.00	2.75	
Total BTEX	<0.300	0.300	02/09/2019	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	02/05/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/09/2019	ND	199	99.3	200	5.04	
DRO >C10-C28*	<10.0	10.0	02/09/2019	ND	204	102	200	5.15	
EXT DRO >C28-C36	<10.0	10.0	02/09/2019	ND					

Surrogate: 1-Chlorooctane 85.9 % 41-142

Surrogate: 1-Chlorooctadecane 87.8 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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---

### Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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\*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager

9 jo 9 eba d

Analysis Request of Custody Record

Page 1 of 1



Tetra Tech, Inc.

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

Client Name:

Concho

Site Manager:

Ike Tavaroz

Project Name:

Pigmy 27

Project Location:

County, Leo, NM

Project #:

Invoice to:

Ike Tavaroz

Receiving Laboratory:

Cardinal Laboratory

Sampler Signature:

Comments:

Email Report to IKT.

SAMPLE IDENTIFICATION

LAB # H900396  
(LAB USE ONLY)

YEAR: 2018	SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS	FILTERED (Y/N)
	DATE	TIME	WATER	SOIL	HCL	HNO <sub>3</sub>		

1. Bottomhole - 2 (Comp 10)  
2. NSU-2 (Comp 4)  
3. NSU-2 (Comp 4)

2/4/19	1600	X					X	2
2/4/19	1605	X					X	1
2/4/19	1400	X					X	1

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	
Chloride Sulfate TDS	
General Water Chemistry (see attached list)	
Anion/Cation Balance	

Hold

Relinquished by:

Date: 2/4/19

Time: 4:38 pm

Received by:

Date: 2-4-19

Time: 16:30

Relinquished by:

Relinquished by:

Date:

Received by:

Date:

LAB USE ONLY  
Sample Temperature  
13.4°C  
#97

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 #:



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

---

February 06, 2019

IKE TAVAREZ

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: PYGMY 27

Enclosed are the results of analyses for samples received by the laboratory on 02/05/19 13:40.

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



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

**Analytical Results For:**

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

Received: 02/05/2019  
 Reported: 02/06/2019  
 Project Name: PYGMY 27  
 Project Number: NONE GIVEN  
 Project Location: COG - LEA CO NM

Sampling Date: 02/05/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: BOTTOM HOLE -2 ( COMP 6' ) (H900425-01)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/05/2019	ND	2.25	112	2.00	2.77	
Toluene*	<0.050	0.050	02/05/2019	ND	2.15	107	2.00	3.10	
Ethylbenzene*	<0.050	0.050	02/05/2019	ND	2.12	106	2.00	3.59	
Total Xylenes*	<0.150	0.150	02/05/2019	ND	6.46	108	6.00	3.93	
Total BTEX	<0.300	0.300	02/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	02/06/2019	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/05/2019	ND	166	83.1	200	5.09	
DRO >C10-C28*	<10.0	10.0	02/05/2019	ND	161	80.5	200	15.3	
EXT DRO >C28-C36	<10.0	10.0	02/05/2019	ND					

Surrogate: 1-Chlorooctane 74.4 % 41-142

Surrogate: 1-Chlorooctadecane 71.6 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

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

Received: 02/05/2019  
 Reported: 02/06/2019  
 Project Name: PYGMY 27  
 Project Number: NONE GIVEN  
 Project Location: COG - LEA CO NM

Sampling Date: 02/05/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: ESW - 1 ( COMP 6' ) (H900425-02)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/05/2019	ND	2.25	112	2.00	2.77	
Toluene*	<0.050	0.050	02/05/2019	ND	2.15	107	2.00	3.10	
Ethylbenzene*	<0.050	0.050	02/05/2019	ND	2.12	106	2.00	3.59	
Total Xylenes*	<0.150	0.150	02/05/2019	ND	6.46	108	6.00	3.93	
Total BTEx	<0.300	0.300	02/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	02/06/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/06/2019	ND	166	83.1	200	5.09	
DRO >C10-C28*	<10.0	10.0	02/06/2019	ND	161	80.5	200	15.3	
EXT DRO >C28-C36	<10.0	10.0	02/06/2019	ND					

Surrogate: 1-Chlorooctane 87.3 % 41-142

Surrogate: 1-Chlorooctadecane 84.6 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received: 02/05/2019  
Reported: 02/06/2019  
Project Name: PYGMY 27  
Project Number: NONE GIVEN  
Project Location: COG - LEA CO NM

Sampling Date: 02/05/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: BOTTOM HOLE -3 ( COMP 6' ) (H900425-03)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/05/2019	ND	2.25	112	2.00	2.77	
Toluene*	<0.050	0.050	02/05/2019	ND	2.15	107	2.00	3.10	
Ethylbenzene*	<0.050	0.050	02/05/2019	ND	2.12	106	2.00	3.59	
Total Xylenes*	<0.150	0.150	02/05/2019	ND	6.46	108	6.00	3.93	
Total BTEx	<0.300	0.300	02/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/06/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/06/2019	ND	166	83.1	200	5.09	
DRO >C10-C28*	<10.0	10.0	02/06/2019	ND	161	80.5	200	15.3	
EXT DRO >C28-C36	<10.0	10.0	02/06/2019	ND					

Surrogate: 1-Chlorooctane 79.2 % 41-142

Surrogate: 1-Chlorooctadecane 75.4 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/05/2019  
Reported: 02/06/2019  
Project Name: PYGMY 27  
Project Number: NONE GIVEN  
Project Location: COG - LEA CO NM

Sampling Date: 02/05/2019  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: ESW - 2 ( COMP 6' ) (H900425-04)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/05/2019	ND	2.25	112	2.00	2.77	
Toluene*	<0.050	0.050	02/05/2019	ND	2.15	107	2.00	3.10	
Ethylbenzene*	<0.050	0.050	02/05/2019	ND	2.12	106	2.00	3.59	
Total Xylenes*	<0.150	0.150	02/05/2019	ND	6.46	108	6.00	3.93	
Total BTEx	<0.300	0.300	02/05/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/06/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/06/2019	ND	166	83.1	200	5.09	
DRO >C10-C28*	<10.0	10.0	02/06/2019	ND	161	80.5	200	15.3	
EXT DRO >C28-C36	<10.0	10.0	02/06/2019	ND					

Surrogate: 1-Chlorooctane 68.0 % 41-142

Surrogate: 1-Chlorooctadecane 65.2 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

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Celey D. Keene, Lab Director/Quality Manager



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February 07, 2019

DEVIN DOMINGUEZ

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: PYGMY 27

Enclosed are the results of analyses for samples received by the laboratory on 02/06/19 16:05.

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

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

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

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

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: PYGMY 27  
Project Number: NONE GIVEN  
Project Manager: DEVIN DOMINGUEZ  
Fax To: (432) 682-3946

Reported:  
07-Feb-19 17:00

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BOTTOM HOLE -4 ( COMP 6' )	H900466-01	Soil	06-Feb-19 11:05	06-Feb-19 16:05
WSW-2 ( COMP 6' )	H900466-02	Soil	06-Feb-19 11:10	06-Feb-19 16:05

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: PYGMY 27  
Project Number: NONE GIVEN  
Project Manager: DEVIN DOMINGUEZ  
Fax To: (432) 682-3946

Reported:  
07-Feb-19 17:00

**BOTTOM HOLE -4 ( COMP 6' )**  
**H900466-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

<b>Chloride</b>	<b>512</b>		16.0	mg/kg	4	9020710	AC	07-Feb-19	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9020614	MS	07-Feb-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			98.4 %		73.3-129	9020614	MS	07-Feb-19	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	9020612	MS	07-Feb-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9020612	MS	07-Feb-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9020612	MS	07-Feb-19	8015B	

Surrogate: 1-Chlorooctane			84.6 %		41-142	9020612	MS	07-Feb-19	8015B	
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Surrogate: 1-Chlorooctadecane			88.4 %		37.6-147	9020612	MS	07-Feb-19	8015B	
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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: PYGMY 27  
Project Number: NONE GIVEN  
Project Manager: DEVIN DOMINGUEZ  
Fax To: (432) 682-3946

Reported:  
07-Feb-19 17:00

**WSW-2 ( COMP 6' )****H900466-02 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories****Inorganic Compounds**

Chloride	96.0		16.0	mg/kg	4	9020710	AC	07-Feb-19	4500-Cl-B	
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**Volatile Organic Compounds by EPA Method 8021**

Benzene*	<0.050		0.050	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9020614	MS	07-Feb-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9020614	MS	07-Feb-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			99.7 %	73.3-129		9020614	MS	07-Feb-19	8021B	
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**Petroleum Hydrocarbons by GC FID**

GRO C6-C10*	<10.0		10.0	mg/kg	1	9020612	MS	07-Feb-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9020612	MS	07-Feb-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9020612	MS	07-Feb-19	8015B	

Surrogate: 1-Chlorooctane			88.6 %	41-142		9020612	MS	07-Feb-19	8015B	
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Surrogate: 1-Chlorooctadecane			92.8 %	37.6-147		9020612	MS	07-Feb-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: PYGMY 27  
Project Number: NONE GIVEN  
Project Manager: DEVIN DOMINGUEZ  
Fax To: (432) 682-3946

Reported:  
07-Feb-19 17:00

**Inorganic Compounds - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 9020710 - General Prep - Wet Chem</b>									
<b>Blank (9020710-BLK1)</b>				Prepared & Analyzed: 07-Feb-19					
Chloride	ND	16.0	mg/kg						
<b>LCS (9020710-BS1)</b>				Prepared & Analyzed: 07-Feb-19					
Chloride	416	16.0	mg/kg	400		104	80-120		
<b>LCS Dup (9020710-BSD1)</b>				Prepared & Analyzed: 07-Feb-19					
Chloride	416	16.0	mg/kg	400		104	80-120	0.00	20

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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: PYGMY 27  
Project Number: NONE GIVEN  
Project Manager: DEVIN DOMINGUEZ  
Fax To: (432) 682-3946

Reported:  
07-Feb-19 17:00

**Volatile Organic Compounds by EPA Method 8021 - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9020614 - Volatiles****Blank (9020614-BLK1)**

Prepared: 06-Feb-19 Analyzed: 07-Feb-19

Benzene	ND	0.050	mg/kg						
Toluene	ND	0.050	mg/kg						
Ethylbenzene	ND	0.050	mg/kg						
Total Xylenes	ND	0.150	mg/kg						
Total BTEX	ND	0.300	mg/kg						
Surrogate: 4-Bromofluorobenzene (PID)	0.103		mg/kg	0.100		103		73.3-129	

**LCS (9020614-BS1)**

Prepared: 06-Feb-19 Analyzed: 07-Feb-19

Benzene	2.10	0.050	mg/kg	2.00		105		72.2-131	
Toluene	2.12	0.050	mg/kg	2.00		106		71.7-126	
Ethylbenzene	2.12	0.050	mg/kg	2.00		106		68.9-126	
Total Xylenes	6.07	0.150	mg/kg	6.00		101		71.4-125	
Surrogate: 4-Bromofluorobenzene (PID)	0.104		mg/kg	0.100		104		73.3-129	

**LCS Dup (9020614-BSD1)**

Prepared: 06-Feb-19 Analyzed: 07-Feb-19

Benzene	2.05	0.050	mg/kg	2.00		102	2.55	72.2-131	6.91
Toluene	2.06	0.050	mg/kg	2.00		103	2.65	71.7-126	7.12
Ethylbenzene	2.07	0.050	mg/kg	2.00		103	2.28	68.9-126	7.88
Total Xylenes	5.87	0.150	mg/kg	6.00		97.8	3.28	71.4-125	7.46
Surrogate: 4-Bromofluorobenzene (PID)	0.105		mg/kg	0.100		105		73.3-129	

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**Analytical Results For:**

TETRA TECH  
901 WEST WALL STREET , STE 100  
MIDLAND TX, 79701

Project: PYGMY 27  
Project Number: NONE GIVEN  
Project Manager: DEVIN DOMINGUEZ  
Fax To: (432) 682-3946

Reported:  
07-Feb-19 17:00

**Petroleum Hydrocarbons by GC FID - Quality Control****Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 9020612 - General Prep - Organics****Blank (9020612-BLK1)**

Prepared: 06-Feb-19 Analyzed: 07-Feb-19

GRO C6-C10	ND	10.0	mg/kg						
DRO >C10-C28	ND	10.0	mg/kg						
EXT DRO >C28-C36	ND	10.0	mg/kg						
Surrogate: 1-Chlorooctane	42.4		mg/kg	50.0		84.8	41-142		
Surrogate: 1-Chlorooctadecane	47.0		mg/kg	50.0		94.0	37.6-147		

**LCS (9020612-BS1)**

Prepared: 06-Feb-19 Analyzed: 07-Feb-19

GRO C6-C10	191	10.0	mg/kg	200		95.7	76.5-133		
DRO >C10-C28	201	10.0	mg/kg	200		100	72.9-138		
Total TPH C6-C28	392	10.0	mg/kg	400		98.0	78-132		
Surrogate: 1-Chlorooctane	46.9		mg/kg	50.0		93.8	41-142		
Surrogate: 1-Chlorooctadecane	47.6		mg/kg	50.0		95.2	37.6-147		

**LCS Dup (9020612-BS1)**

Prepared: 06-Feb-19 Analyzed: 07-Feb-19

GRO C6-C10	197	10.0	mg/kg	200		98.6	76.5-133	3.04	20.6
DRO >C10-C28	204	10.0	mg/kg	200		102	72.9-138	1.84	20.6
Total TPH C6-C28	402	10.0	mg/kg	400		100	78-132	2.43	18
Surrogate: 1-Chlorooctane	48.2		mg/kg	50.0		96.4	41-142		
Surrogate: 1-Chlorooctadecane	48.6		mg/kg	50.0		97.3	37.6-147		

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in cursive script, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager

6 jo 6 abed

Analysis Request of Chain of Custody Record

Page \_\_\_\_\_ of \_\_\_\_\_



**Tetra Tech, Inc.**

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

Client Name:

Concho

Site Manager:

Ike Tavaroz

Project Name:

Pymy 27

Project Location: (county, state)

Lea, NM

Project #:

Invoice to:

Ike Tavaroz

Receiving Laboratory:

Cardinal

Sampler Signature:

Comments:

Request to be Attached To Results email: dev-dominguez83@yahoo.com

LAB #

490546-

LAB USE ONLY

SAMPLE IDENTIFICATION

SAMPLING

MATRIX

PRESERVATIVE METHOD

YEAR: 2019

DATE

TIME

WATER

SOIL

HCL

HNO<sub>3</sub>

ICE

None

# CONTAINERS

FILTERED (Y/N)

01 Bottomhole - 4 (Comp G)

02 WSW-2 (Comp G)

01

02

03

04

05

BTEX 8021B

TPH TX1005 (Ext to C35)

TPH 8015M (GRO - DRO - ORO - MRO)

PAH 8270C

Total Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8260B / 624

GC/MS Semi. Vol. 8270C/625

PCB's 8082 / 608

NORM

PLM (Asbestos)

Chloride

Chloride Sulfate TDS

General Water Chemistry (see attached list)

Anion/Cation Balance

Hold

ANALYSIS REQUEST

(Circle or Specify Method No.)

REMARKS:

☐ STANDARD

☒ RUSH: Same Day (24 hr) 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

LAB USE ONLY

Sample Temperature

5.90C

#97

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

ORIGINAL COPY



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

---

February 08, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: PYGMY 27

Enclosed are the results of analyses for samples received by the laboratory on 02/07/19 16:32.

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 fluid and cursive, with the first name "Celey" and last name "Keene" clearly distinguishable.

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	02/07/2019	Sampling Date:	02/07/2019
Reported:	02/08/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

**Sample ID: BOTTOM HOLE -5 ( COMP 6' ) (H900493-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/08/2019	ND	2.19	109	2.00	1.55	
Toluene*	<0.050	0.050	02/08/2019	ND	2.22	111	2.00	0.771	
Ethylbenzene*	<0.050	0.050	02/08/2019	ND	2.21	110	2.00	1.42	
Total Xylenes*	<0.150	0.150	02/08/2019	ND	6.27	104	6.00	1.53	
Total BTEX	<0.300	0.300	02/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	02/08/2019	ND	432	108	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/07/2019	ND	186	92.8	200	0.524	
DRO >C10-C28*	<10.0	10.0	02/07/2019	ND	191	95.6	200	2.77	
EXT DRO >C28-C36	<10.0	10.0	02/07/2019	ND					

Surrogate: 1-Chlorooctane 88.5 % 41-142

Surrogate: 1-Chlorooctadecane 79.5 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received: 02/07/2019  
 Reported: 02/08/2019  
 Project Name: PYGMY 27  
 Project Number: NONE GIVEN  
 Project Location: COG - LEA CO NM

Sampling Date: 02/07/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: ESW - 3 ( COMP 6' ) (H900493-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/08/2019	ND	1.97	98.7	2.00	8.02		
Toluene*	<0.050	0.050	02/08/2019	ND	2.03	102	2.00	5.81		
Ethylbenzene*	<0.050	0.050	02/08/2019	ND	1.99	99.5	2.00	6.31		
Total Xylenes*	<0.150	0.150	02/08/2019	ND	5.74	95.7	6.00	5.23		
Total BTEX	<0.300	0.300	02/08/2019	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/08/2019	ND	432	108	400	3.64		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/07/2019	ND	186	92.8	200	0.524	
DRO >C10-C28*	<10.0	10.0	02/07/2019	ND	191	95.6	200	2.77	
EXT DRO >C28-C36	<10.0	10.0	02/07/2019	ND					

Surrogate: 1-Chlorooctane 89.3 % 41-142

Surrogate: 1-Chlorooctadecane 76.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager







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---

February 11, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: PYGMY 27

Enclosed are the results of analyses for samples received by the laboratory on 02/08/19 14:40.

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



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

**Analytical Results For:**

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

Received:	02/08/2019	Sampling Date:	02/08/2019
Reported:	02/11/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	** (See Notes)
Project Number:	212C-MD-01596	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

**Sample ID: BOTTOM HOLE -8 ( COMP 5' ) (H900516-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/10/2019	ND	1.98	99.0	2.00	0.306	
Toluene*	<0.050	0.050	02/10/2019	ND	2.04	102	2.00	0.484	
Ethylbenzene*	<0.050	0.050	02/10/2019	ND	1.97	98.6	2.00	1.08	
Total Xylenes*	<0.150	0.150	02/10/2019	ND	5.73	95.5	6.00	1.39	
Total BTEX	<0.300	0.300	02/10/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	02/11/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/10/2019	ND	203	102	200	0.793	
DRO >C10-C28*	<10.0	10.0	02/10/2019	ND	223	111	200	9.53	
EXT DRO >C28-C36	<10.0	10.0	02/10/2019	ND					

Surrogate: 1-Chlorooctane 50.1 % 41-142

Surrogate: 1-Chlorooctadecane 51.1 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received: 02/08/2019  
 Reported: 02/11/2019  
 Project Name: PYGMY 27  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/08/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: ESW - 4 ( COMP 5' ) (H900516-02)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/10/2019	ND	1.98	99.0	2.00	0.306		
Toluene*	<0.050	0.050	02/10/2019	ND	2.04	102	2.00	0.484		
Ethylbenzene*	<0.050	0.050	02/10/2019	ND	1.97	98.6	2.00	1.08		
Total Xylenes*	<0.150	0.150	02/10/2019	ND	5.73	95.5	6.00	1.39		
Total BTX	<0.300	0.300	02/10/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.1 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	02/11/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/10/2019	ND	203	102	200	0.793	
DRO >C10-C28*	<10.0	10.0	02/10/2019	ND	223	111	200	9.53	
EXT DRO >C28-C36	<10.0	10.0	02/10/2019	ND					

Surrogate: 1-Chlorooctane 67.9 % 41-142

Surrogate: 1-Chlorooctadecane 71.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received: 02/08/2019  
 Reported: 02/11/2019  
 Project Name: PYGMY 27  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/08/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM HOLE -9 ( COMP 8' ) (H900516-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/10/2019	ND	1.98	99.0	2.00	0.306		
Toluene*	<0.050	0.050	02/10/2019	ND	2.04	102	2.00	0.484		
Ethylbenzene*	<0.050	0.050	02/10/2019	ND	1.97	98.6	2.00	1.08		
Total Xylenes*	<0.150	0.150	02/10/2019	ND	5.73	95.5	6.00	1.39		
Total BTEX	<0.300	0.300	02/10/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.7 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/11/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/10/2019	ND	203	102	200	0.793	
DRO >C10-C28*	<10.0	10.0	02/10/2019	ND	223	111	200	9.53	
EXT DRO >C28-C36	<10.0	10.0	02/10/2019	ND					

Surrogate: 1-Chlorooctane 70.5 % 41-142

Surrogate: 1-Chlorooctadecane 74.6 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received: 02/08/2019  
 Reported: 02/11/2019  
 Project Name: PYGMY 27  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/08/2019  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Tamara Oldaker

**Sample ID: ESW - 5 ( COMP 8' ) (H900516-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/10/2019	ND	1.98	99.0	2.00	0.306		
Toluene*	<0.050	0.050	02/10/2019	ND	2.04	102	2.00	0.484		
Ethylbenzene*	<0.050	0.050	02/10/2019	ND	1.97	98.6	2.00	1.08		
Total Xylenes*	<0.150	0.150	02/10/2019	ND	5.73	95.5	6.00	1.39		
Total BTEX	<0.300	0.300	02/10/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.4 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	02/11/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/10/2019	ND	203	102	200	0.793	
DRO >C10-C28*	<10.0	10.0	02/10/2019	ND	223	111	200	9.53	
EXT DRO >C28-C36	<10.0	10.0	02/10/2019	ND					

Surrogate: 1-Chlorooctane 64.1 % 41-142

Surrogate: 1-Chlorooctadecane 65.7 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

---

### Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

---

Celey D. Keene, Lab Director/Quality Manager





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

---

February 12, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: PYGMY 27 #001H

Enclosed are the results of analyses for samples received by the laboratory on 02/11/19 16:52.

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



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

**Analytical Results For:**

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

Received:	02/11/2019	Sampling Date:	02/11/2019
Reported:	02/12/2019	Sampling Type:	Soil
Project Name:	PYGMY 27 #001H	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01596	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

**Sample ID: BOTTOM HOLE -6 ( COMP 8' ) (H900535-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2019	ND	1.75	87.5	2.00	2.09	
Toluene*	<0.050	0.050	02/12/2019	ND	1.82	91.0	2.00	2.68	
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.77	88.7	2.00	2.99	
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.16	86.1	6.00	3.19	
Total BTEX	<0.300	0.300	02/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 90.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	02/12/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 84.9 % 41-142

Surrogate: 1-Chlorooctadecane 83.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WSW - 3 ( COMP 8' ) (H900535-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.75	87.5	2.00	2.09		
Toluene*	<0.050	0.050	02/12/2019	ND	1.82	91.0	2.00	2.68		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.77	88.7	2.00	2.99		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.16	86.1	6.00	3.19		
Total BTEX	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/12/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 73.5 % 41-142

Surrogate: 1-Chlorooctadecane 72.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM HOLE -7 ( COMP 8' ) (H900535-03)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.75	87.5	2.00	2.09		
Toluene*	<0.050	0.050	02/12/2019	ND	1.82	91.0	2.00	2.68		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.77	88.7	2.00	2.99		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.16	86.1	6.00	3.19		
Total BTEx	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 86.3 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/12/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 67.3 % 41-142

Surrogate: 1-Chlorooctadecane 67.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WSW - 4 ( COMP 8' ) (H900535-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.75	87.5	2.00	2.09		
Toluene*	<0.050	0.050	02/12/2019	ND	1.82	91.0	2.00	2.68		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.77	88.7	2.00	2.99		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.16	86.1	6.00	3.19		
Total BTEX	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 87.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 70.1 % 41-142

Surrogate: 1-Chlorooctadecane 70.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM HOLE -10 ( COMP 8' ) (H900535-05)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.75	87.5	2.00	2.09		
Toluene*	<0.050	0.050	02/12/2019	ND	1.82	91.0	2.00	2.68		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.77	88.7	2.00	2.99		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.16	86.1	6.00	3.19		
Total BTEx	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 87.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 68.8 % 41-142

Surrogate: 1-Chlorooctadecane 68.3 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WSW - 5 ( COMP 8' ) (H900535-06)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.75	87.5	2.00	2.09		
Toluene*	<0.050	0.050	02/12/2019	ND	1.82	91.0	2.00	2.68		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.77	88.7	2.00	2.99		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.16	86.1	6.00	3.19		
Total BTEx	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 93.2 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 69.6 % 41-142

Surrogate: 1-Chlorooctadecane 69.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM HOLE -11 ( COMP 6' ) (H900535-07)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.75	87.5	2.00	2.09		
Toluene*	<0.050	0.050	02/12/2019	ND	1.82	91.0	2.00	2.68		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.77	88.7	2.00	2.99		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.16	86.1	6.00	3.19		
Total BTEx	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 90.3 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 52.6 % 41-142

Surrogate: 1-Chlorooctadecane 59.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WSW -6 ( COMP 6' ) (H900535-08)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.97	98.7	2.00	7.12		
Toluene*	<0.050	0.050	02/12/2019	ND	1.99	99.5	2.00	4.77		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.95	97.4	2.00	4.35		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.78	96.3	6.00	6.81		
Total BTX	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 58.6 % 41-142

Surrogate: 1-Chlorooctadecane 57.8 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM HOLE -12 ( COMP 9' ) (H900535-09)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2019	ND	1.97	98.7	2.00	7.12		
Toluene*	<0.050	0.050	02/12/2019	ND	1.99	99.5	2.00	4.77		
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	1.95	97.4	2.00	4.35		
Total Xylenes*	<0.150	0.150	02/12/2019	ND	5.78	96.3	6.00	6.81		
Total BTX	<0.300	0.300	02/12/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.4 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 74.3 % 41-142

Surrogate: 1-Chlorooctadecane 73.2 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: WSW - 7 ( COMP 9' ) (H900535-10)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2019	ND	2.28	114	2.00	2.57	
Toluene*	<0.050	0.050	02/12/2019	ND	2.15	107	2.00	1.80	
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	2.10	105	2.00	2.45	
Total Xylenes*	<0.150	0.150	02/12/2019	ND	6.27	105	6.00	1.84	
Total BTEX	<0.300	0.300	02/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 74.3 % 41-142

Surrogate: 1-Chlorooctadecane 73.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: BOTTOM HOLE -13 ( COMP 6' ) (H900535-11)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2019	ND	2.28	114	2.00	2.57	
Toluene*	<0.050	0.050	02/12/2019	ND	2.15	107	2.00	1.80	
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	2.10	105	2.00	2.45	
Total Xylenes*	<0.150	0.150	02/12/2019	ND	6.27	105	6.00	1.84	
Total BTEX	<0.300	0.300	02/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 72.8 % 41-142

Surrogate: 1-Chlorooctadecane 72.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/11/2019  
 Reported: 02/12/2019  
 Project Name: PYGMY 27 #001H  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/11/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: ESW -6 ( COMP 6' ) (H900535-12)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2019	ND	2.28	114	2.00	2.57	
Toluene*	<0.050	0.050	02/12/2019	ND	2.15	107	2.00	1.80	
Ethylbenzene*	<0.050	0.050	02/12/2019	ND	2.10	105	2.00	2.45	
Total Xylenes*	<0.150	0.150	02/12/2019	ND	6.27	105	6.00	1.84	
Total BTEx	<0.300	0.300	02/12/2019	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/12/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	186	93.0	200	0.00	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	187	93.5	200	0.695	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 69.3 % 41-142

Surrogate: 1-Chlorooctadecane 68.3 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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### Notes and Definitions

QR-04	The RPD for the BS/BSD was outside of historical limits.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager











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February 13, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: PYGMY 27

Enclosed are the results of analyses for samples received by the laboratory on 02/12/19 16:10.

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



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

**Analytical Results For:**

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

Received: 02/12/2019  
 Reported: 02/13/2019  
 Project Name: PYGMY 27  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/12/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: NSW -1 ( COMP 9' ) (H900553-01)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/13/2019	ND	2.24	112	2.00	1.67	
Toluene*	<0.050	0.050	02/13/2019	ND	2.15	108	2.00	3.96	
Ethylbenzene*	<0.050	0.050	02/13/2019	ND	2.09	105	2.00	1.77	
Total Xylenes*	<0.150	0.150	02/13/2019	ND	6.25	104	6.00	1.61	
Total BTEX	<0.300	0.300	02/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	02/13/2019	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	194	96.9	200	3.55	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	163	81.7	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 84.4 % 41-142

Surrogate: 1-Chlorooctadecane 86.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/12/2019  
 Reported: 02/13/2019  
 Project Name: PYGMY 27  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/12/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: NSW -2 ( COMP 6' ) (H900553-02)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/13/2019	ND	2.24	112	2.00	1.67	
Toluene*	<0.050	0.050	02/13/2019	ND	2.15	108	2.00	3.96	
Ethylbenzene*	<0.050	0.050	02/13/2019	ND	2.09	105	2.00	1.77	
Total Xylenes*	<0.150	0.150	02/13/2019	ND	6.25	104	6.00	1.61	
Total BTEX	<0.300	0.300	02/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	02/13/2019	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	194	96.9	200	3.55	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	163	81.7	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 69.0 % 41-142

Surrogate: 1-Chlorooctadecane 82.2 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received: 02/12/2019  
 Reported: 02/13/2019  
 Project Name: PYGMY 27  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/12/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SSW -1 ( COMP 6' ) (H900553-03)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/13/2019	ND	2.24	112	2.00	1.67	
Toluene*	<0.050	0.050	02/13/2019	ND	2.15	108	2.00	3.96	
Ethylbenzene*	<0.050	0.050	02/13/2019	ND	2.09	105	2.00	1.77	
Total Xylenes*	<0.150	0.150	02/13/2019	ND	6.25	104	6.00	1.61	
Total BTEX	<0.300	0.300	02/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/13/2019	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	194	96.9	200	3.55	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	163	81.7	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 82.8 % 41-142

Surrogate: 1-Chlorooctadecane 83.8 % 37.6-147

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**Analytical Results For:**

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

Received: 02/12/2019  
 Reported: 02/13/2019  
 Project Name: PYGMY 27  
 Project Number: 212C-MD-01596  
 Project Location: COG - LEA CO NM

Sampling Date: 02/12/2019  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SSW-2 ( COMP 8' ) (H900553-04)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/13/2019	ND	2.24	112	2.00	1.67	
Toluene*	<0.050	0.050	02/13/2019	ND	2.15	108	2.00	3.96	
Ethylbenzene*	<0.050	0.050	02/13/2019	ND	2.09	105	2.00	1.77	
Total Xylenes*	<0.150	0.150	02/13/2019	ND	6.25	104	6.00	1.61	
Total BTEX	<0.300	0.300	02/13/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/13/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/12/2019	ND	194	96.9	200	3.55	
DRO >C10-C28*	<10.0	10.0	02/12/2019	ND	163	81.7	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	02/12/2019	ND					

Surrogate: 1-Chlorooctane 62.5 % 41-142

Surrogate: 1-Chlorooctadecane 63.7 % 37.6-147

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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\*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

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Celey D. Keene, Lab Director/Quality Manager





## Appendix D

## Lea County, New Mexico

### PT—Pyote loamy fine sand

#### Map Unit Setting

*National map unit symbol:* dmqp

*Elevation:* 3,000 to 3,900 feet

*Mean annual precipitation:* 10 to 12 inches

*Mean annual air temperature:* 60 to 62 degrees F

*Frost-free period:* 190 to 200 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Pyote and similar soils:* 85 percent

*Minor components:* 15 percent

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

#### Description of Pyote

##### Setting

*Landform:* Plains

*Landform position (three-dimensional):* Rise

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Sandy eolian deposits derived from sedimentary rock

##### Typical profile

*A - 0 to 25 inches:* loamy fine sand

*Bt - 25 to 60 inches:* fine sandy loam

##### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Well drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* High  
(2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 5 percent

*Gypsum, maximum in profile:* 1 percent

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

*Sodium adsorption ratio, maximum in profile:* 2.0

*Available water storage in profile:* Low (about 5.3 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 6e

*Land capability classification (nonirrigated):* 7s

Map Unit Description: Pyote loamy fine sand---Lea County, New Mexico

Pygmy 27 State #001H Battery

*Hydrologic Soil Group:* A  
*Ecological site:* Loamy Sand (R042XC003NM)  
*Hydric soil rating:* No

#### **Minor Components**

##### **Maljamar**

*Percent of map unit:* 8 percent  
*Ecological site:* Loamy Sand (R042XC003NM)  
*Hydric soil rating:* No

##### **Palomas**

*Percent of map unit:* 7 percent  
*Ecological site:* Loamy Sand (R042XC003NM)  
*Hydric soil rating:* No

### **Data Source Information**

Soil Survey Area: Lea County, New Mexico  
Survey Area Data: Version 15, Sep 12, 2018

(28)

BLM SERIAL #:

COMPANY REFERENCE:

### 3.3 Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sand love grass ( <i>Eragrostis trichodes</i> )	1.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed: Pounds of seed x percent purity x percent germination = pounds pure live seed

**District I**  
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**District II**  
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Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS  
  
Action 163016

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 163016
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	12/1/2022