

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:

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

Official Communication:

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

Site Characterization

Depth to Groundwater:	102' below surface
Karst Potential:	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



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.



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'.

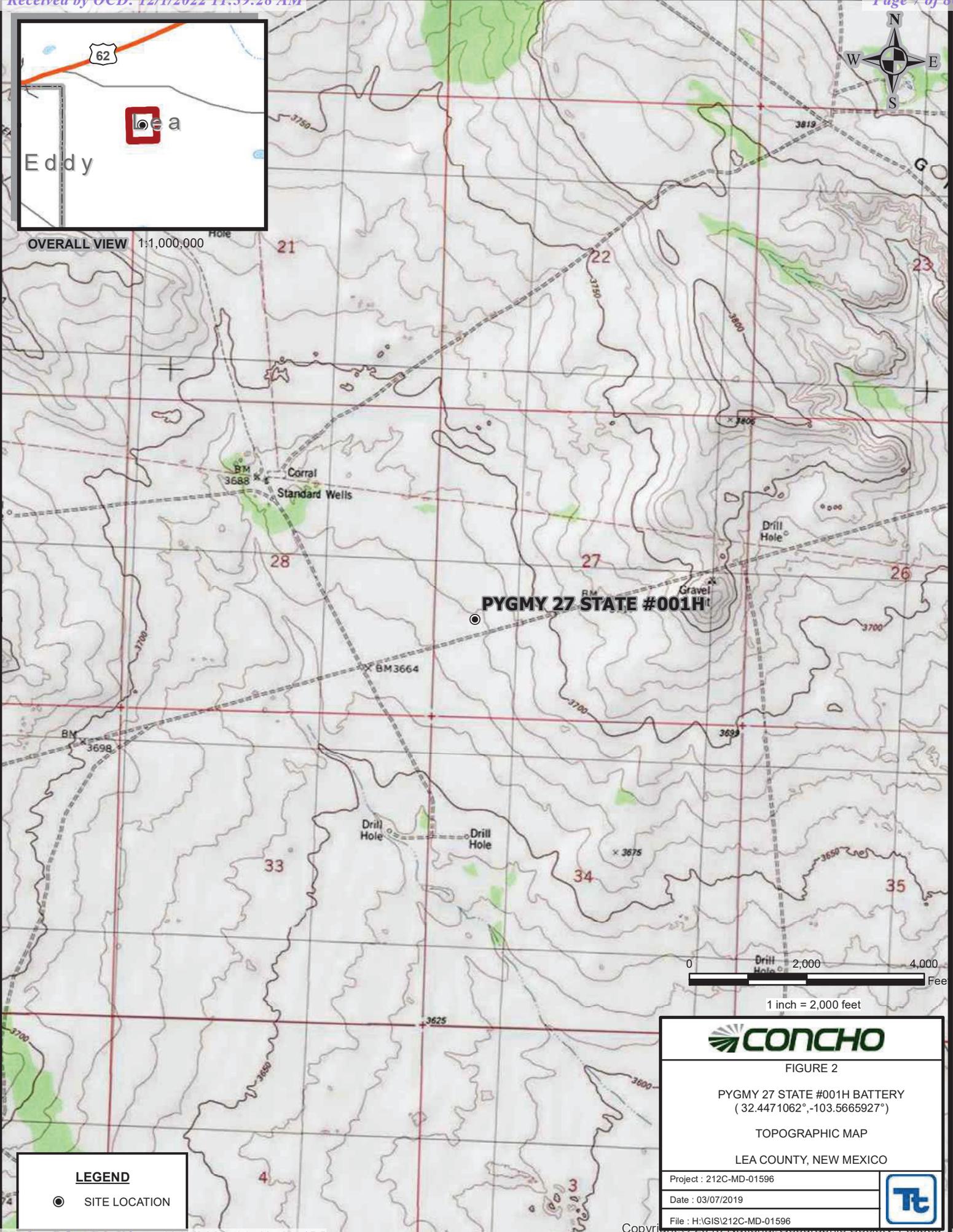
Kayla Taylor,
Project Manager

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

CONCHO

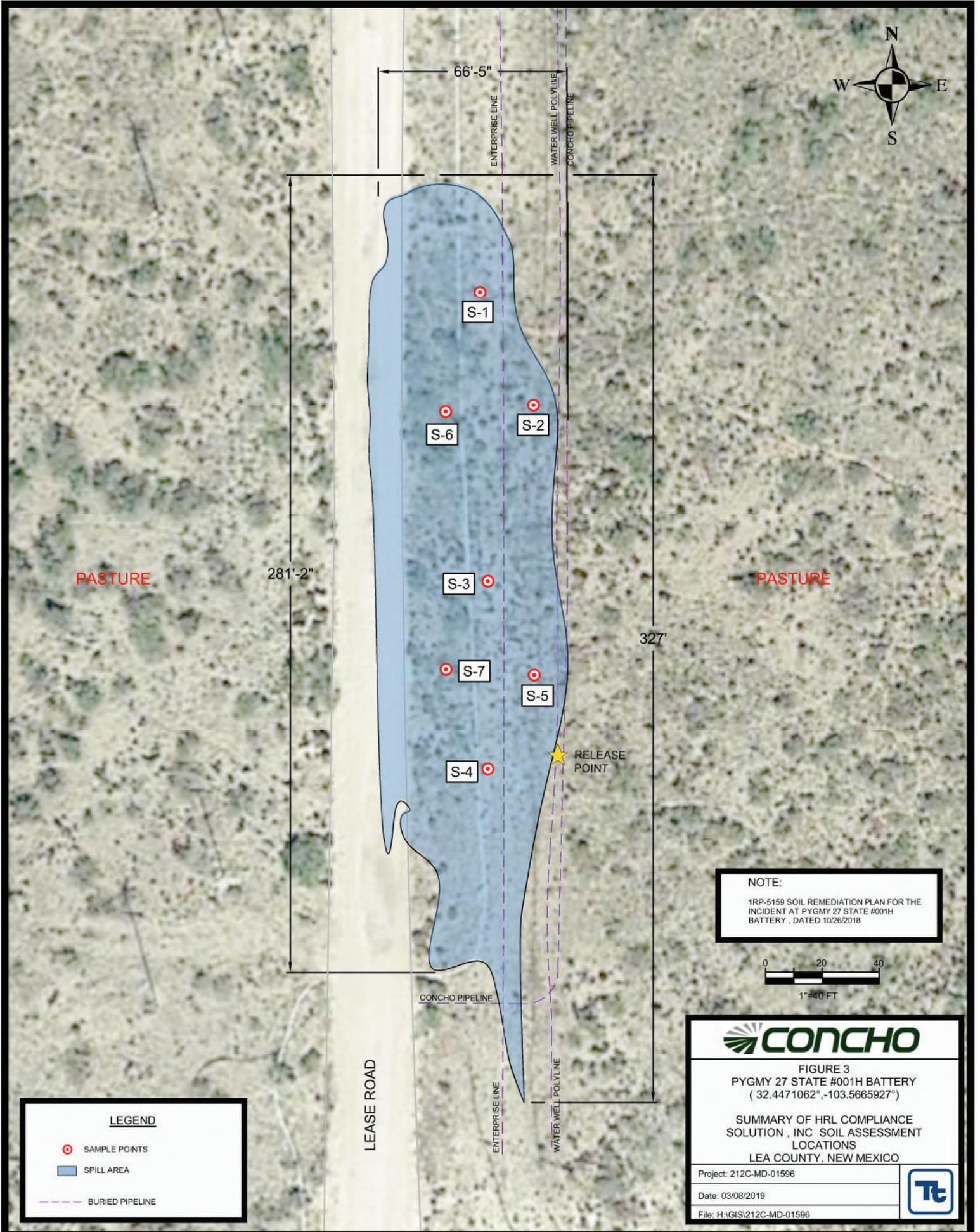
FIGURE 2

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

TOPOGRAPHIC MAP

LEA COUNTY, NEW MEXICO

Project : 212C-MD-01596	
Date : 03/07/2019	
File : H:\GIS\212C-MD-01596	



LEGEND

- ⊙ SAMPLE POINTS
- SPILL AREA
- - - BURIED PIPELINE

NOTE:
 1RP-5159 SOIL REMEDIATION PLAN FOR THE INCIDENT AT PYGMY 27 STATE #001H BATTERY , DATED 10/26/2018

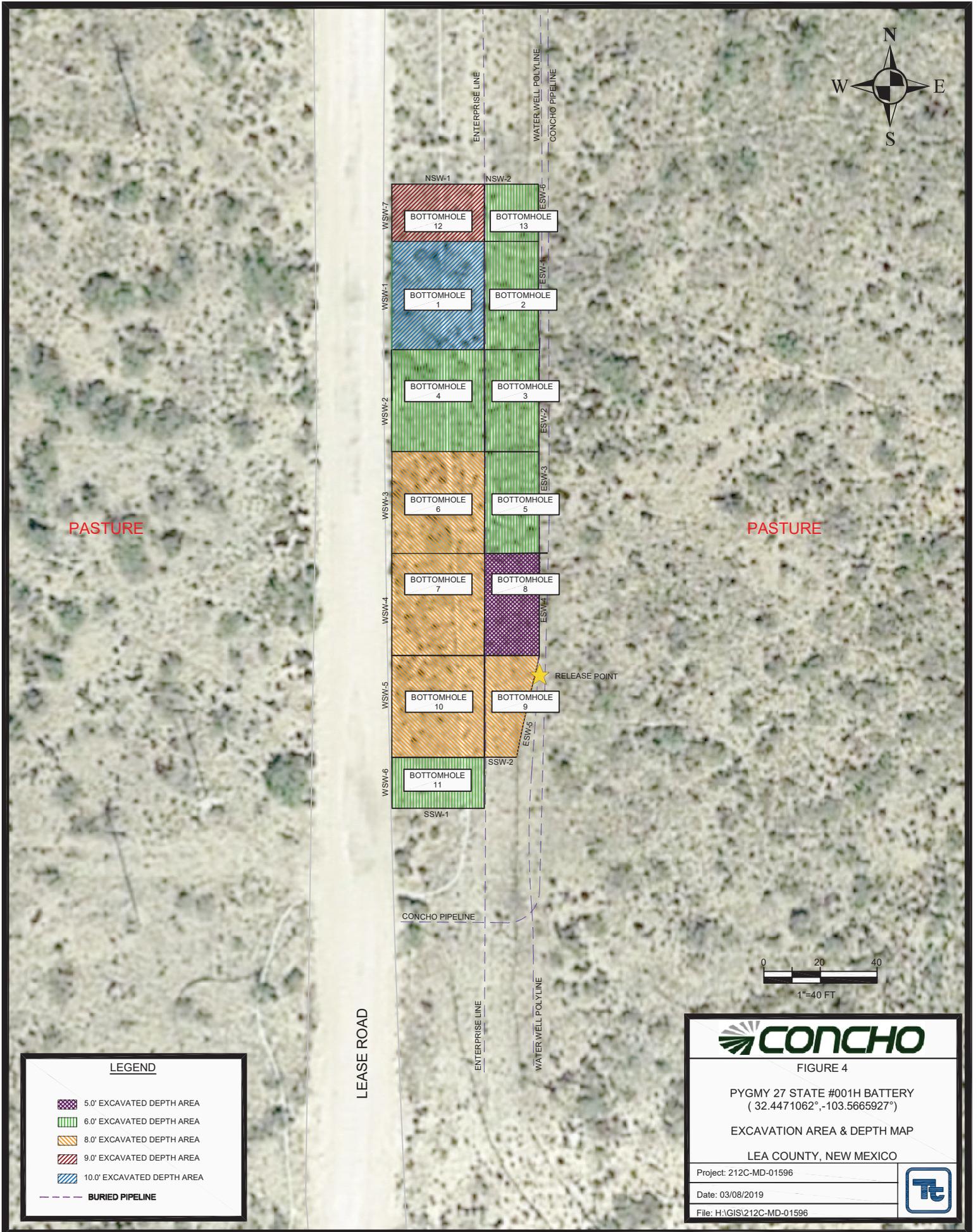


CONCHO

FIGURE 3
 PYGMY 27 STATE #001H BATTERY
 (32.4471062°, -103.5665927°)

SUMMARY OF HRL COMPLIANCE
 SOLUTION , INC. SOIL ASSESSMENT
 LOCATIONS
 LEA COUNTY, NEW MEXICO

Project: 212C-MD-01596	
Date: 03/08/2019	
File: H:\GIS\212C-MD-01596	



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				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)	
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
	8/31/2019	Surface		X	ND	760	550	1,310	ND	ND	-	-	8,700
S2	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	-	-	-	-	-	-	-	-	-
	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
S3	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
	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
S4	8/31/2019	4		X	-	-	-	-	-	-	-	-	5,700
	8/31/2019	6		X	-	-	-	-	-	-	-	-	910
	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
S5	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
	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
S6	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)
S7	8/31/2019	Surface		X	ND	ND	ND	ND	ND	-	-	-	3,500
	9/1/2019	1		X	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
GRO
Diesel Range Organics
DRO
Oil Range Organics
ORO
Not Detected
ND
Not Analyzed
NA
Exceeds Threshold Concentration
BOLD
Data acquired from HRL Compliance Solutions, Inc. - IRP-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 Diesel Range Organics
 PPM Oil Range Organics
 mg/kg Parts per million
 TPH Milligrams per kilogram
 GRO Total Petroleum Hydrocarbons
 Gasoline Range Organics

The identification of the analyte is acceptable; the reported value is an estimate.
 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



TETRA TECH



Area of Excavation – View South



Area of Excavation – View South

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



TETRA TECH



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 Tavarez Title: Senior HSE Supervisor

Signature:  Date: 3/15/2019

email: itavarez@concho.com Telephone: 432-685-2573

OCD Only

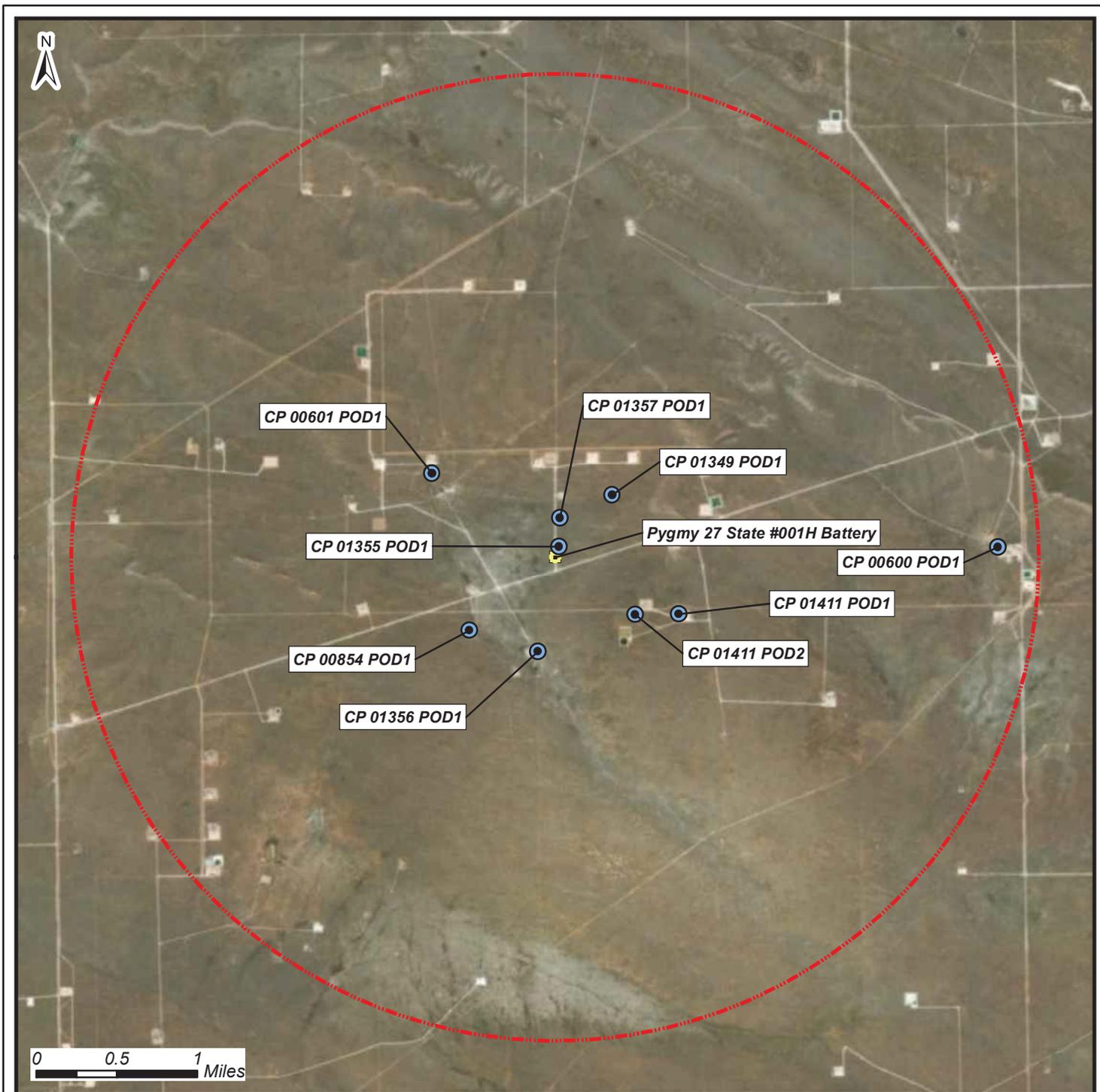
Received by: _____ Date: _____

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



 Water Well Location Map Pygmy 27 State #001H Battery 32.447305 -103.566524 Section 27, Township 21 South, Range 33 East	
Mapped Features	
 Water Wells	 3 Mile Radius
 Well Pad	
<small>DISCLAIMER: This representation and the Geographic Information System (GIS) used to create it are designed as a source of reference and not intended to replace official records and/or legal surveys. HRL assumes no responsibility for any risks, dangers, or liabilities that may result from its use and makes no guarantees as to the quality or accuracy of the underlying data.</small>	
	
<small>Author: A. Asay</small> <small>Revision: 0</small> <small>Date: 10/5/2018</small>	



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
CP 01355 POD1	CP	LE		2	1	3	27	21S	33E	634773	3591061	165	1192	582	610
CP 01357 POD1	CP	LE		4	3	1	27	21S	33E	634782	3591347	449	1286	578	708
CP 01349 POD1	CP	LE		2	3	1	27	21S	33E	635304	3591576	882	1188	572	616
CP 01356 POD1	CP	LE		4	2	2	33	21S	33E	634560	3590014	903	1098	555	543
CP 01411 POD2	CP	LE			1	2	34	21S	33E	635534	3590380	951	1125		
CP 00854 POD1	CP	LE		1	1	2	33	21S	33E	633879	3590223	1093	950	600	350
CP 01411 POD1	CP	LE			2	2	34	21S	33E	635968	3590386	1333	1149		
CP 00601 POD1	CP	LE			2	1	28	21S	33E	633502	3591791*	1523	223		
CP 00600 POD1	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.



Legend

- High
- Low

Pygmy 27 #001H Battery

Pygmy 27 #001H Battery

Earst Potential Map

Hobbs Hwy

38

243

62

176

8

Pygmy 27 #001H Battery

Jal Hwy

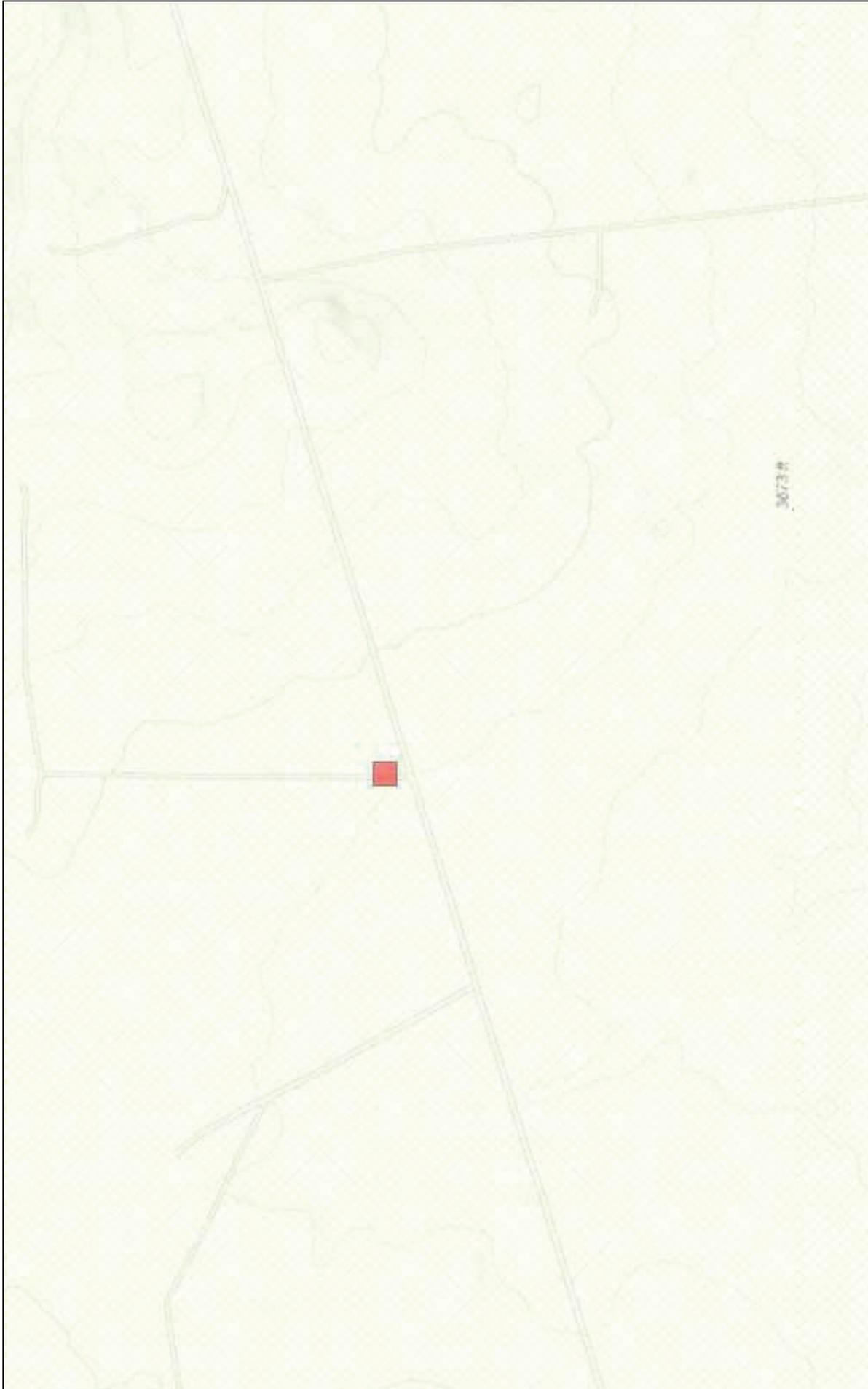
128

Google earth

© 2018 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,

nrflood.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.

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".

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	Sampling Date:	02/04/2019
Reported:	02/11/2019	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 -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



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	Sampling Date:	02/04/2019
Reported:	02/11/2019	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: 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, 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	02/05/2019	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



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	Sampling Date:	02/04/2019
Reported:	02/11/2019	Sampling Type:	Soil
Project Name:	PYGYMY 27	Sampling Condition:	** (See Notes)
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

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

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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

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Custody Record



Tetra Tech, Inc.

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

Client Name: **CONCHO** Site Manager: **IKE TAVAREZ**

Project Name: **Pigmy 27**

Project Location: (county, state) **Lea, NM**

Invoice to: **IKE TAVAREZ**

Receiving Laboratory: **Cardinal laboratory**

Comments: **Email Report to IKE.T.**

SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD			# CONTAINERS	FILTERED (Y/N)
	DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE		
LAB # HP003916 (LAB USE ONLY)									
1. Bottomhole - 2 (Comp 10)	2/4/19	1600	X				X	2	
2. NSU0-2 (Comp 4')	2/4/19	1605	X				X	1	
3. NSU0-2 (Comp 4')	2/4/19	1700	X				X	1	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>[Signature]</i>	2/11/19	4:38 pm	<i>[Signature]</i>	2-4-19	16:30
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

LAB USE ONLY	REMARKS:
Sample Temperature 13.4c #97	<input type="checkbox"/> STANDARD <input checked="" type="checkbox"/> RUSH: Same Day (24 hr) 48 hr 72 hr <input type="checkbox"/> Rush Charges Authorized <input type="checkbox"/> Special Report Limits or TRRP Report

ORIGINAL COPY



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.

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".

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	Sampling Date:	02/05/2019
Reported:	02/06/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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

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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	Sampling Date:	02/05/2019
Reported:	02/06/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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	Sampling Date:	02/05/2019
Reported:	02/06/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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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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	Sampling Date:	02/05/2019
Reported:	02/06/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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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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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Custody Record



Tetra Tech, Inc.

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

Client Name: **Concho**
 Project Name: **Pygmy 87**
 Project Location: (county, state) **Lea, NM**
 Project #:

Site Manager: **Ike Tavares**
 Invoice to: **Ike Tavares**
 Receiving Laboratory: **Cardinal**
 Sampler Signature: *[Signature]*

Comments:

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE	None		
1	Bottomhole-2 (Comp 6')	2/5/19	1335	X						1	
2	ESW-1 (Comp 6')	2/5/19	1330	X						1	
3	Bottomhole-3 (Comp 6')	2/5/19	1330	X						1	
4	ESW-2 (Comp 6')	2/5/19	1335	X						1	

Reinquished by:	Date:	Time:	Received by:	Date:	Time:
<i>[Signature]</i>	2/5/19	1330	<i>[Signature]</i>	2/5/19	13:40
Reinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

LAB USE ONLY	REMARKS:
Sample Temperature	<input type="checkbox"/> STANDARD
5.4e	<input checked="" type="checkbox"/> RUSH: Same Day 24 hr
#97	<input type="checkbox"/> Rush Charges Authorized
	<input type="checkbox"/> Special Report Limits or TRRP Report

ORIGINAL COPY



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

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/ga/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
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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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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
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**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

Chloride	512		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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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
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**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	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>			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	

<i>Surrogate: 1-Chlorooctane</i>			88.6 %		41-142	9020612	MS	07-Feb-19	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>			92.8 %		37.6-147	9020612	MS	07-Feb-19	8015B	
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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
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Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9020710 - General Prep - Wet Chem										
Blank (9020710-BLK1)										
Prepared & Analyzed: 07-Feb-19										
Chloride	ND	16.0	mg/kg							
LCS (9020710-BS1)										
Prepared & Analyzed: 07-Feb-19										
Chloride	416	16.0	mg/kg	400		104	80-120			
LCS Dup (9020710-BSD1)										
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
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Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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	72.2-131	2.55	6.91	
Toluene	2.06	0.050	mg/kg	2.00		103	71.7-126	2.65	7.12	
Ethylbenzene	2.07	0.050	mg/kg	2.00		103	68.9-126	2.28	7.88	
Total Xylenes	5.87	0.150	mg/kg	6.00		97.8	71.4-125	3.28	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
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Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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-BSD1)		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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Caley 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

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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.

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".

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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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: 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, 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	02/08/2019	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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

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

Client Name: **Concho** Site Manager: **Kayla Taylor**

Project Name: **Plym 07**

Project Location: **Lea, NM** Project #: **212C-MD-01596**

Invoice to: **Ike Tovar**

Receiving Laboratory: **Cardinal** Sampler Signature:

Comments: **Request to email dev-dominguez83@yahoo.com on Result Email list**

LAB #	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD			# CONTAINERS	FILTERED (Y/N)
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE		
1	Bottomhole-5 (Comp 6')	2/7	1445	X	X			X	1	
2	ESUS-3 (Comp 6')	2/7	1447	X				X	1	

Relinquished by:	Date: 2/1/19	Time: 4:31 pm	Received by:	Date: 2-7-19	Time: 14:32
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

LAB USE ONLY
Sample Temperature: **#97**
REMARKS:
 STANDARD
 RUSH: Same Day (24 hr) **All samples**
 Rush Charges Authorized
 Special Report Limits or TRRP Report

ORIGINAL COPY



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 02/08/19 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.

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 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:	PYGYM 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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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: ESW - 4 (COMP 5') (H900516-02)

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	02/10/2019	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) 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



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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:	02/08/2019	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 -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

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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	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: 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, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	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

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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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Custody Record



Tetra Tech, Inc.

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

Client Name: **Concho** Site Manager: **Kayla Taylor**

Project Name: **Pigmy 87**

Project Location: **Lea, NM** Project #: **2120-MD-01596**

Invoice to: **Ike Tavares**

Receiving Laboratory: **Cardinal** Sampler Signature: *[Signature]*

Comments: **Requests to Attach Kayla.Lovelytaylor@tetratech.com to Result Email**

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		DATE	TIME	MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)
		YEAR: 2019	2019			WATER	SOIL	HCL	HNO ₃	ICE	None		
1	Bottomhole-8 (Comp 5')	2/8	1445	2/8	1445	X	X	X	X	X	X	1	
2	ESU-4 (Comp 5')	2/8	1447	2/8	1447	X	X	X	X	X	X	1	
3	Bottomhole-9 (Comp 5')	2/8	1418	2/8	1418	X	X	X	X	X	X	1	
4	ESU-5 (Comp 6')	2/8	1420	2/8	1420	X	X	X	X	X	X	1	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Devin Dominguez	2/8/19	2:40 pm	[Signature]	2-8-19	14:40
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST
(Circle or Specify Method No.)

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

LAB USE ONLY

Sample Temperature: **#97**

REMARKS:

STANDARD

RUSH: Same Day (24 hr) 48 hr 72 hr

Rush Charges Authorized

Special Report Limits or TRRP Report

6.3e

ORIGINAL COPY



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.

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:	PYGYM 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	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: 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	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 -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



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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	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: 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



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 -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	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: 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	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 -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



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: WSW -6 (COMP 6') (H900535-08)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	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 BTEX	<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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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 -12 (COMP 9') (H900535-09)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	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 BTEX	<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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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	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: 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	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 -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	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: 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, 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	02/12/2019	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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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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste 401
Midland, Texas 79705
Tel (432) 692-4559
Fax (432) 692-3946

Client Name: **Concho** Site Manager: **Kayla Taylor**

Project Name: **Pygmy 27 #001H**

Project Location: (county, state) **Lea, NM**

Project #: **212C-MD-01596**

Invoice to: **Ike Tovaréz**

Receiving Laboratory: **Cardinal**

Sampler Signature: *[Signature]*

Comments: **Request to attach devin.dominguez@tetratech.com to Result Email**

LAB #	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)
		YEAR: 2019	2019	WATER	SOIL	HCL	HNO ₃	ICE	None		
1	Bottomhole-6 (Comp 8')	2/11	1130	X	X	X	X	X	X	1	X
2	WSU-3 (Comp 8')	2/11	1130	X	X	X	X	X	X	1	X
3	Bottomhole-7 (Comp 8')	2/11	1134	X	X	X	X	X	X	1	X
4	WSU-4 (Comp 8')	2/11	1136	X	X	X	X	X	X	1	X
5	Bottomhole-10 (Comp 8')	2/11	1138	X	X	X	X	X	X	1	X
6	WSU-5 (Comp 8')	2/11	1140	X	X	X	X	X	X	1	X
7	Bottomhole-11 (Comp 6')	2/11	1140	X	X	X	X	X	X	1	X
8	WSU-6 (Comp 6')	2/11	1144	X	X	X	X	X	X	1	X
9	Bottomhole-12 (Comp 9')	2/11	1600	X	X	X	X	X	X	1	X
10	WSU-7 (Comp 9')	2/11	1600	X	X	X	X	X	X	1	X

Relinquished by: **Devin Dominguez** Date: **2/11/19** Time: **1645**
 Received by: *[Signature]* Date: **2-11-19** Time: **14:52**

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

LAB USE ONLY	REMARKS:	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	
<input checked="" type="checkbox"/>		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

ORIGINAL COPY

Kayla.LovelyTaylor@tetratech.com ; itavaréz@concho.com

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

4000 N. Big Spring Street, Ste 401
Midland, Texas 79705
Tel (432) 692-4559
Fax (432) 892-3946

Client Name: **Concho** Site Manager: **Kayla Taylor**

Project Name: **Pygmy #7 #001H**

Project Location: (county, state) **Lea, NM** Project #: **2120-MD-01596**

Invoice to: **Ike Tavares**

Receiving Laboratory: **Cardinal** Sampler Signature: *[Signature]*

Comments: **Request to attach devin.dominguez@tetratech.com to Results Email**

LAB #	SAMPLE IDENTIFICATION	SAMPLING		DATE	TIME	MATRIX		PRESERVATIVE METHOD			# CONTAINERS	FILTERED (Y/N)
		YEAR	MONTH			WATER	SOIL	HCL	HNO ₃	ICE		
11	Bottomhole-13 (Comp G')	2/11	1630	2/11	1630	X	X	X	X	X	1	
12	ESU-6 (Comp G')	2/11	1630	2/11	1630	X	X	X	X	X	1	

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Devin Dominguez	2/11/19	1645	<i>[Signature]</i>	2/11/19	1452
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

ANALYSIS REQUEST (Circle or Specify Method No.)

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

LAB USE ONLY

REMARKS:

STANDARD

RUSH: Same Day (24 hr) 48 hr 72 hr

Rush Charges Authorized

Special Report Limits or TRRP Report

Sample Temperature: **49.7**

LAB USE ONLY: **6.40**

ALL Samples

ORIGINAL COPY



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

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.

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".

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	Sampling Date:	02/12/2019
Reported:	02/13/2019	Sampling Type:	Soil
Project Name:	PYGYM 27	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01596	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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	Sampling Date:	02/12/2019
Reported:	02/13/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01596	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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, 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	02/13/2019	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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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	Sampling Date:	02/12/2019
Reported:	02/13/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01596	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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, 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	02/13/2019	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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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	Sampling Date:	02/12/2019
Reported:	02/13/2019	Sampling Type:	Soil
Project Name:	PYGMY 27	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01596	Sample Received By:	Jodi Henson
Project Location:	COG - LEA CO NM		

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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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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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

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

Client Name: Concho

Site Manager: Kayla Taylor

Project Name: Pygmy 27

Project Location: (county, state) Lea, NM

Project #: 212-c-md-01596

Invoice to: ILE Tavares

Receiving Laboratory: Cardinal

Sampler Signature: *[Signature]*

Comments: Kevin.dominguez@tetratech.com; Kayla.LovelyTaylor@tetratech.com; itavares@concho.com Attached to Result Email

LAB # H900553

SAMPLE IDENTIFICATION

LAB #	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD			# CONTAINERS	FILTERED (Y/N)
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE		
1	NSW-1 (Comp 9')	2/12	1040	X	X	X	X	X	1	
2	NSW-2 (Comp 6')	2/12	1010	X	X	X	X	X	1	
3	SSW-1 (Comp 6')	2/12	1245	X	X	X	X	X	1	
4	SSW-2 (Comp 8')	2/12	1250	X	X	X	X	X	1	

LAB USE ONLY	REMARKS:	ANALYSIS REQUEST (Circle or Specify Method No.)
STANDARD	<input type="checkbox"/>	BTEX 8021B BTEX 8260B
RUSH: Same Day (24 hr)	<input type="checkbox"/>	TPH TX1005 (Ext to C35)
Rush Charges Authorized	<input type="checkbox"/>	TPH 8015M (GRO - DRO - ORO - MRO)
Special Report Limits or TRRP Report	<input type="checkbox"/>	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: Derrin Dominguez Date: 2/12/19 Time: 4:10 pm

Received by: *[Signature]* Date: 2/12/19 Time: 16:10

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

ORIGINAL COPY

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
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 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