SITE INFORMATION

Report Type: Closure Report 1RP-4455

General Site Information:						
Site:	**Laguna Deep #7**					
Company:	**Cimarex Energy**					
Section, Township and Range	**Unit E**	**Sec. 36**	**T 19S**	**R 33E**		
Lease Number:	**API No. 30-025-36255**					
County:	**Lea County**					
GPS:	**32.618109°**			**-103.621671°**		
Surface Owner:	State					
Directions:	From the intersection of W. Carlsbad Hwy. and Smith Ranch Rd., head northwest on Smith Ranch Rd. for 1.7 miles, turn right (northeast), go 325 feet and arrive on location.					

Release Data:	
Date Released:	9/17/2016
Type Release:	Produced Water
Source of Contamination:	Fiberglass tank
Fluid Released:	210 bbls
Fluids Recovered:	210 bbls

Official Communication:			
Name:	Gloria Garza		Clair Gonzales
Company:	Cimarex Energy		Tetra Tech
Address:	600 N. Marienfield St.		901 W. Wall St.
	Ste 400		Ste 100
City:	Midland Texas, 79701		Midland, Texas, 79701
Phone number:	(432) 234-3204		(432) 687-8123
Fax:			
Email:	ggarza@cimarex.com		Clair.Gonzales@Tetratech.com

Site Characterization	
Depth to Groundwater:	*84' below ground surface*
Karst Potential:	*Low*

Recommended Remedial Action Levels (RRALs)			
Benzene	***Total BTEX***	***TPH (GRO+DRO+MRO)***	***Chlorides***
10 mg/kg	*50 mg/kg*	*1,000 mg/kg*	*250 mg/kg*

TETRA TECH

March 7, 2019

Gloria Garza
ESH Specialist – Permian Basin
Cimarex Energy
600 N. Marienfeld St.
Midland, Texas 79701

Re: Closure Report for the Cimarex Energy, Laguna Deep #7, Unit E, Section 36, Township 19 South, Range 33 East, Lea County, New Mexico.

Ms. Garza:

Tetra Tech, Inc. (Tetra Tech) was contacted by Cimarex Energy (Cimarex) to prepare a closure report for a spill at the Laguna Deep #7, Unit E, Section 36, Township 19 South, Range 33 East, Lea County, New Mexico (site). The spill site coordinates are 32.618109º, -103.621671º. The site location is shown on Maps 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on September 17, 2016, and released approximately two hundred ten (210) barrels of produced water due to a lightning strike to a produced water stock tank. Approximately two hundred ten (210) barrels of produced water was recovered. The release occurred on the pad area and traveled to the pasture. The spill measured approximately 110' x 270'. The initial C-141 Form is included in Appendix A.

Diversified Field Services, Inc. was contracted to perform the initial site assessment and remediation at the site. After submitting work plans to the NMOCD, Diversified excavated the areas of concern on the facility's pad and installed a liner, per NMOCD's request. Photo documentation of Diversified's remediation activities and views of the rebuilt facility, post-remediation, are included.

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. The nearest well is listed on the USGS National Water Information System in Section 26, approximately 0.9 miles northwest of the site, and has a reported depth to groundwater of 84 feet below ground surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in this area is approximately 75' below surface. The groundwater data is shown in Appendix B.

TETRA TECH

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. 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 depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Remediation and Analytical Results

Tetra Tech personnel were onsite January 28-29, 2019, to supervise the remediation activities in the southeast pasture area. The areas of auger holes (SP2 and SP3) were excavated to 4' below surface. Sidewall and bottom hole confirmation samples were then collected from those excavations. Additionally, the area of auger hole (SP-1) was trenched with a backhoe, per NMOCD's request for delineation in the area.

Selected samples were analyzed for TPH analysis by EPA Method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included. The results of the sampling are summarized in Table 1. The sample locations are shown in Plat 3.

Referring to Lab Analysis Table 1, all analyzed samples showed benzene, total BTEX, and TPH below the RRAL's. Additionally, all samples showed chloride concentrations below 250 mg/kg.

Approximately 170 cubic yards of material was removed and hauled to proper disposal. The excavations were then lined with a 20 mil liner, backfilled with clean material and returned to surface grade. The excavation areas and depths are shown on Plat 4.

<u>Revegetation</u>

Reseeding will be performed in June 2019 to coincide with the rainy season in Southeastern New Mexico and aid in revegetation. Based on the soils at the site, the NMSLO Seed Mix for Deep Sand (DS) will be used 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 handheld broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds PLS 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 NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will

be reseeded as appropriate. The NMSLO seed mixture details and corresponding pounds PLS per acre are included in Appendix C.

Conclusion

Based on the laboratory results and the remediation activities performed, Cimarex 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 activities for this site, please call at (432) 682-4559.

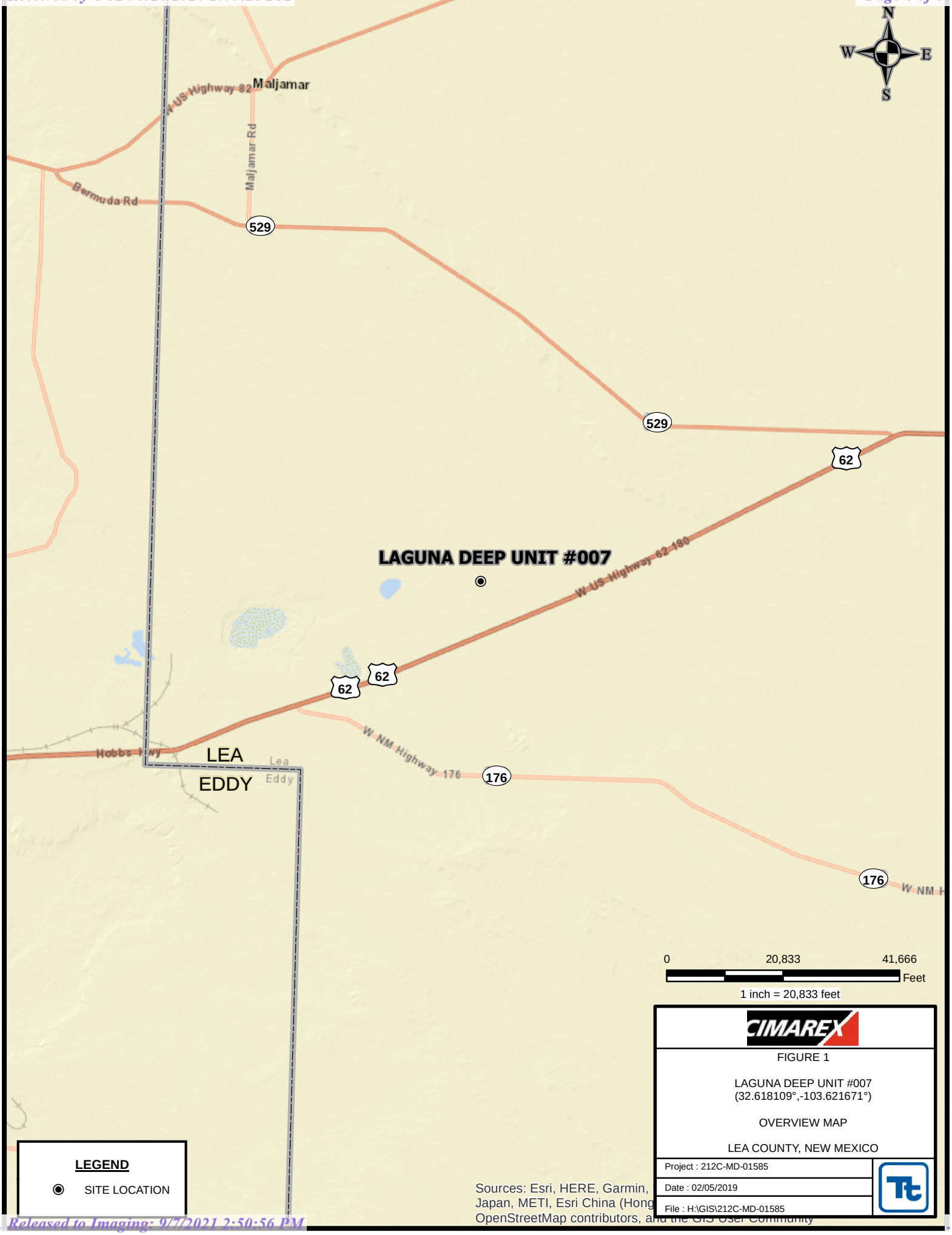
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

Johnathon Kell,
Geologist II

cc: Ryan Mann – SLO
Amber Groves -- SLO

Maps/Plats



CIMAREX

FIGURE 1

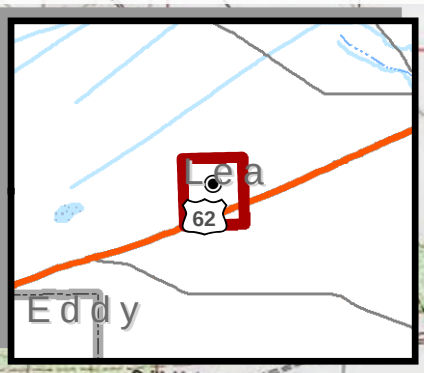
LAGUNA DEEP UNIT #007
(32.618109°,-103.621671°)

OVERVIEW MAP

LEA COUNTY, NEW MEXICO

Project : 212C-MD-01585	
Date : 02/05/2019	
File : H:\GIS\212C-MD-01585	

MAPPED BY: MISTI MORGAN



OVERALL VIEW 1:737,336

LAGUNA DEEP UNIT #007

N
W
E
S

0 2,000 4,000 Feet

1 inch = 2,000 feet

LEGEND

◉ SITE LOCATION

CIMAREX

FIGURE 2

LAGUNA DEEP UNIT #007
(32.618109°,-103.621671°)

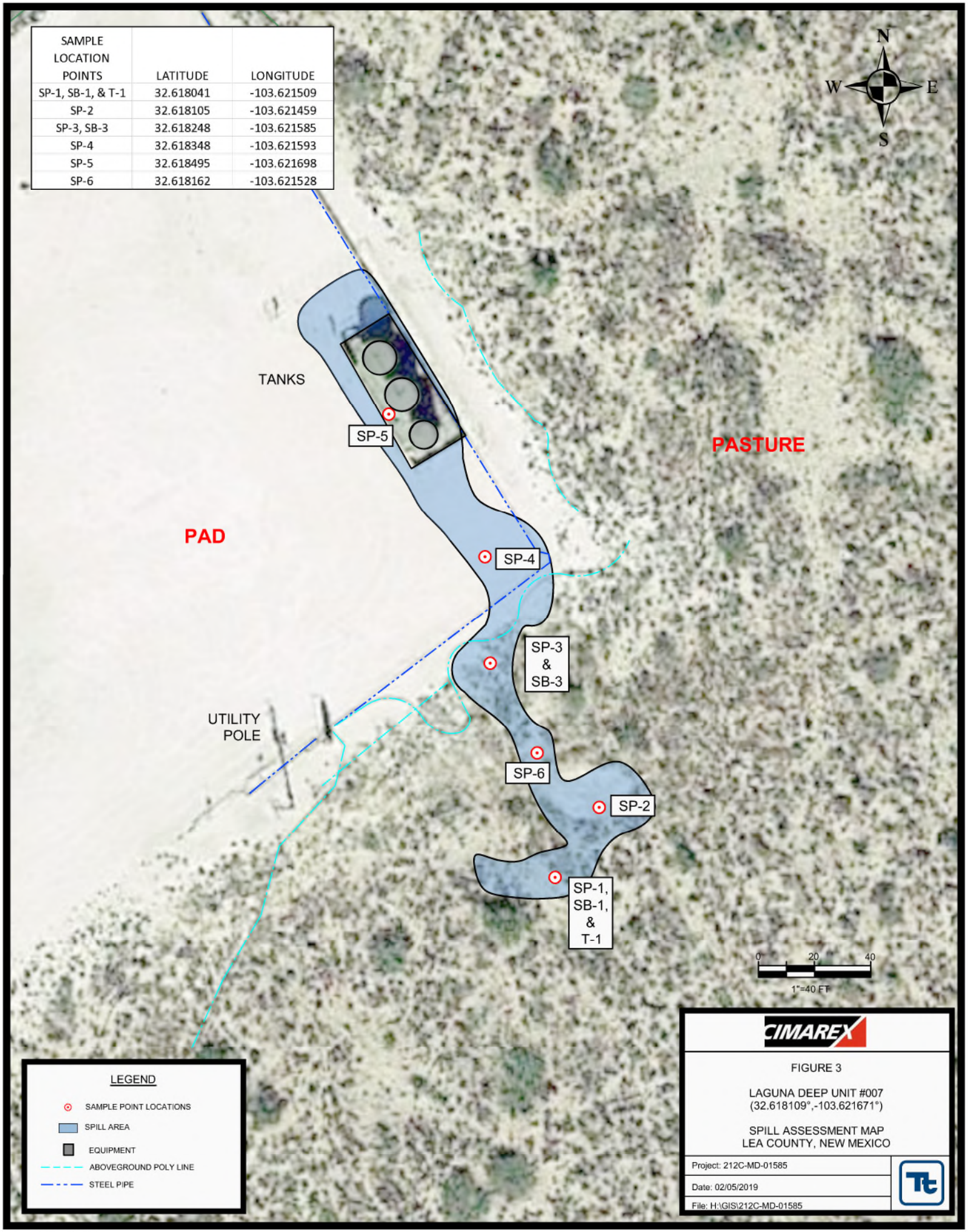
TOPOGRAPHIC MAP

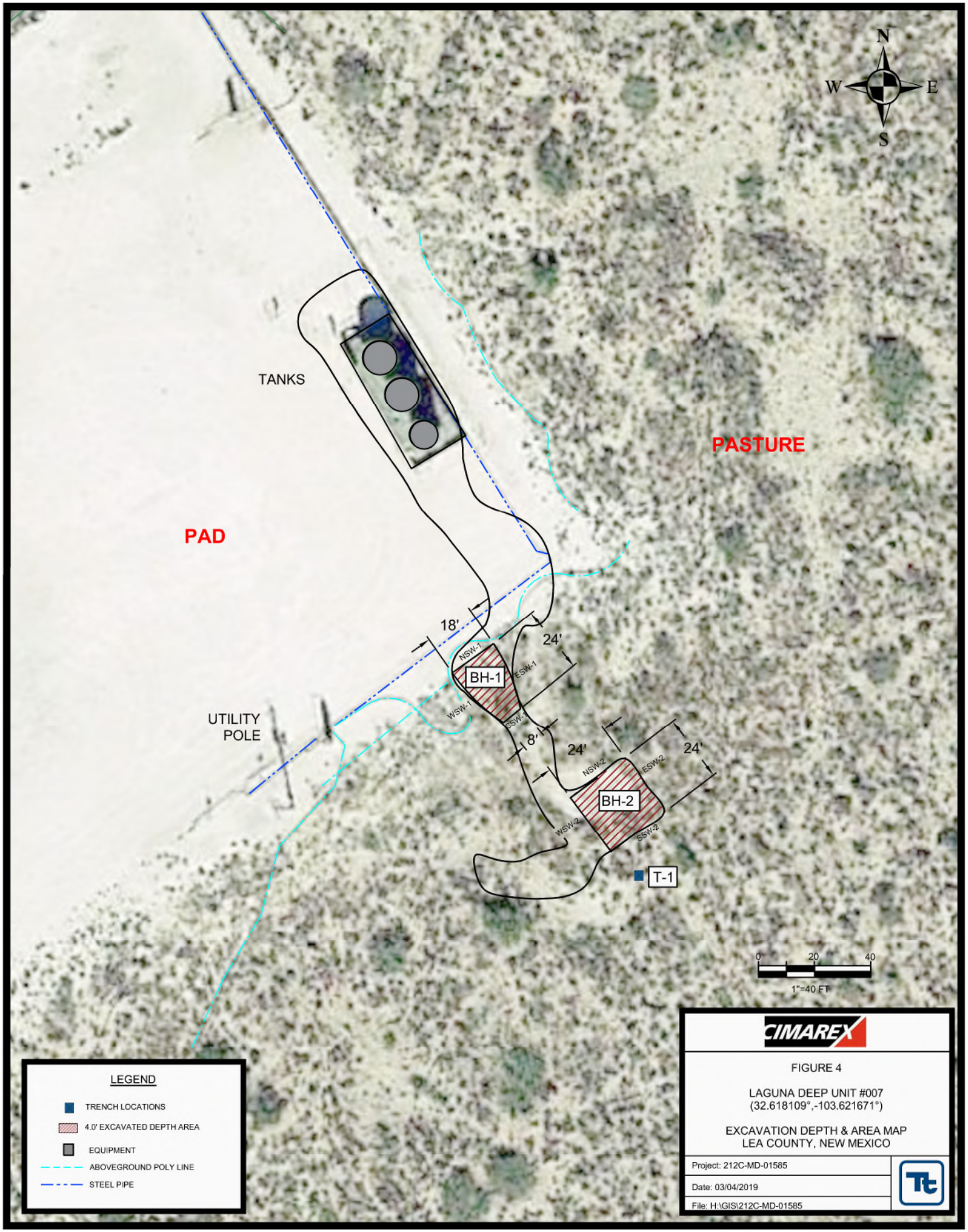
LEA COUNTY, NEW MEXICO

Project : 212C-MD-01585	
Date : 02/05/2019	
File : H:\GIS\212C-MD-01585	

MAPPED BY: MISTI MORGAN

SAMPLE LOCATION POINTS	LATITUDE	LONGITUDE
SP-1, SB-1, & T-1	32.618041	-103.621509
SP-2	32.618105	-103.621459
SP-3, SB-3	32.618248	-103.621585
SP-4	32.618348	-103.621593
SP-5	32.618495	-103.621698
SP-6	32.618162	-103.621528




N
W
E
S
TANKS
PASTURE
PAD
UTILITY POLE
18'
24'
NSW-1
ESW-1
WSW-1
SSW-1
BH-1
8'
24'
24'
NSW-2
ESW-2
WSW-2
SSW-2
BH-2
T-1
0
20
40
1"=40 FT
LEGEND
TRENCH LOCATIONS
4.0' EXCAVATED DEPTH AREA
EQUIPMENT
ABOVEGROUND POLY LINE
STEEL PIPE
CIMAREX
FIGURE 4
LAGUNA DEEP UNIT #007
(32.618109°,-103.621671°)
EXCAVATION DEPTH & AREA MAP
LEA COUNTY, NEW MEXICO
Project: 212C-MD-01585
Date: 03/04/2019
File: H:\GIS\212C-MD-01585
Drawn By: MISTI MORGAN

Lab Analysis

Table 1
Cimarex Energy
Laguna Deep Unit #7
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total						
NSW-1	1/28/2019	-	-	X		<10.0	11.8	<10.0	11.8	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
ESW-1	1/28/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
WSW-1	1/28/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
SSW-1	1/28/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
NSW-2	1/28/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
ESW-2	1/28/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
WSW-2	1/28/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	48.0
SSW-2	1/28/2019	-	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
Bottom Hole #1	1/28/2019	-	4	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	160
Bottom Hole #2	1/28/2019	-	4	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
T-1 (SP1)	1/29/2019	0-1	-	X		<10.0	26.9	<10.0	26.9	<0.050	<0.050	<0.050	<0.150	<0.300	16.0
	"	2	-	X		<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.150	<0.300	<16.0
	"	3	-	X		-	-	-	-	-	-	-	-	-	48.0
	"	4	-	X		-	-	-	-	-	-	-	-	-	48.0
	"	6	-	X		-	-	-	-	-	-	-	-	-	32.0
	"	8	-	X		-	-	-	-	-	-	-	-	-	48.0

(-) Not Analyzed

CARDINAL Laboratories

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

January 29, 2019

CLAIR GONZALES

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: LAGUNA DEEP UNIT #007

Enclosed are the results of analyses for samples received by the laboratory on 01/28/19 16:45.

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 accreditated 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,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: NSW - 1 (H900297-01)

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	01/29/2019	ND	1.72	86.1	2.00	1.21	
Toluene*	<0.050	0.050	01/29/2019	ND	1.84	92.2	2.00	0.419	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.81	90.3	2.00	0.0881	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.27	87.8	6.00	0.0829	
Total BTEX	<0.300	0.300	01/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *92.8 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	01/29/2019	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	01/28/2019	ND	179	89.3	200	2.28	
DRO >C10-C28*	**11.8**	10.0	01/28/2019	ND	196	98.1	200	0.889	
EXT DRO >C28-C36	<10.0	10.0	01/28/2019	ND					

Surrogate: 1-Chlorooctane *86.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *83.4 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: ESW - 1 (H900297-02)

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	01/29/2019	ND	1.72	86.1	2.00	1.21	
Toluene*	<0.050	0.050	01/29/2019	ND	1.84	92.2	2.00	0.419	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.81	90.3	2.00	0.0881	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.27	87.8	6.00	0.0829	
Total BTEX	<0.300	0.300	01/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *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	01/29/2019	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	01/28/2019	ND	179	89.3	200	2.28	
DRO >C10-C28*	<10.0	10.0	01/28/2019	ND	196	98.1	200	0.889	
EXT DRO >C28-C36	<10.0	10.0	01/28/2019	ND					

Surrogate: 1-Chlorooctane *90.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *87.7 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: WSW - 1 (H900297-03)

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	01/29/2019	ND	1.72	86.1	2.00	1.21	
Toluene*	<0.050	0.050	01/29/2019	ND	1.84	92.2	2.00	0.419	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.81	90.3	2.00	0.0881	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.27	87.8	6.00	0.0829	
Total BTEX	<0.300	0.300	01/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.1 %* *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	01/29/2019	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	01/29/2019	ND	179	89.3	200	2.28	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	196	98.1	200	0.889	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *88.4 %* *41-142*

Surrogate: 1-Chlorooctadecane *85.2 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: SSW - 1 (H900297-04)

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	01/29/2019	ND	1.72	86.1	2.00	1.21	
Toluene*	<0.050	0.050	01/29/2019	ND	1.84	92.2	2.00	0.419	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.81	90.3	2.00	0.0881	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.27	87.8	6.00	0.0829	
Total BTEX	<0.300	0.300	01/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *93.1 %* *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	01/29/2019	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	01/29/2019	ND	179	89.3	200	2.28	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	196	98.1	200	0.889	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *84.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *80.5 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: NSW - 2 (H900297-05)

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	01/29/2019	ND	1.72	86.1	2.00	1.21	
Toluene*	<0.050	0.050	01/29/2019	ND	1.84	92.2	2.00	0.419	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.81	90.3	2.00	0.0881	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.27	87.8	6.00	0.0829	
Total BTEX	<0.300	0.300	01/29/2019	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	**32.0**	16.0	01/29/2019	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	01/29/2019	ND	179	89.3	200	2.28	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	196	98.1	200	0.889	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *84.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *83.1 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: ESW - 2 (H900297-06)

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	01/29/2019	ND	1.72	86.1	2.00	1.21	
Toluene*	<0.050	0.050	01/29/2019	ND	1.84	92.2	2.00	0.419	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.81	90.3	2.00	0.0881	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.27	87.8	6.00	0.0829	
Total BTEX	<0.300	0.300	01/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *94.8 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	01/29/2019	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	01/29/2019	ND	179	89.3	200	2.28	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	196	98.1	200	0.889	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *87.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *83.6 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: WSW - 2 (H900297-07)

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	01/29/2019	ND	1.65	82.7	2.00	0.346	
Toluene*	<0.050	0.050	01/29/2019	ND	1.70	84.8	2.00	1.23	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.70	85.0	2.00	1.04	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.22	86.9	6.00	0.833	
Total BTEX	<0.300	0.300	01/29/2019	ND					

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

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	01/29/2019	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	01/29/2019	ND	182	91.2	200	0.296	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	200	100	200	0.940	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *80.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *74.4 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: SSW - 2 (H900297-08)

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	01/29/2019	ND	1.65	82.7	2.00	0.346	
Toluene*	<0.050	0.050	01/29/2019	ND	1.70	84.8	2.00	1.23	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.70	85.0	2.00	1.04	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.22	86.9	6.00	0.833	
Total BTEX	<0.300	0.300	01/29/2019	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	01/29/2019	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	01/29/2019	ND	182	91.2	200	0.296	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	200	100	200	0.940	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *90.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *81.4 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Texas Tech	**BILL TO**
Project Manager: Clair Gonzales	P.O. #:
Address: 901 W. Wall St.	Company: Cimarex
City: Midland State: TX Zip: 79701	Attn: Christine Alderman
Phone #: 432-240-8634 Fax #:	Address: 600 N. Marienfield STE 600
Project #: Project Owner: Cimarex	City: Midland
Project Name: Laguna Deep Unit #007	State: TX Zip: 79701
Project Location: Lea Co., NM	Phone #: 432-853-7054
Sampler Name: Stephen Reyes	Fax #:

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8021 B	TPH 8015 M	Chloride
H900297																	
1	NSW-1		1			X					X		1-28-19		X	X	X
2	ESW-1		1			X					X		1-28-19		X	X	X
3	WSW-1		1			X					X		1-28-19		X	X	X
4	SSW-1		1			X					X		1-28-19		X	X	X
5	NSW-2		1			X					X		1-28-19		X	X	X
6	ESW-2		1			X					X		1-28-19		X	X	X
7	WSW-2		1			X					X		1-28-19		X	X	X
8	SSW-2		1			X					X		1-28-19		X	X	X

Relinquished By:	Date: 1-28-19	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 14:45		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: RUSH
	Time:		Clair.gonzales@tetratech.com
Delivered By: (Circle One)	Sample Condition: Cool ☑ Yes ☐ No Intact ☐ Yes ☐ No	CHECKED BY: (Initials)	Stephen.reyes@tetratech.com
Sampler - UPS - Bus - Other: 1.8°C #007		TO	

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL Laboratories

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

January 29, 2019

CLAIR GONZALES

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: LAGUNA DEEP UNIT #007

Enclosed are the results of analyses for samples received by the laboratory on 01/28/19 16:45.

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 accreditated 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,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: BOTTOM HOLE 1 (4' BEB) (H900298-01)

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	01/29/2019	ND	1.65	82.7	2.00	0.346	
Toluene*	<0.050	0.050	01/29/2019	ND	1.70	84.8	2.00	1.23	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.70	85.0	2.00	1.04	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.22	86.9	6.00	0.833	
Total BTEX	<0.300	0.300	01/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.5 %* *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	**160**	16.0	01/29/2019	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	01/29/2019	ND	182	91.2	200	0.296	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	200	100	200	0.940	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *87.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *79.1 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	01/28/2019	Sampling Date:	01/28/2019
Reported:	01/29/2019	Sampling Type:	Soil
Project Name:	LAGUNA DEEP UNIT #007	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	CIMAREX- LEA CO NM		

Sample ID: BOTTOM HOLE 2 (4' BEB) (H900298-02)

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	01/29/2019	ND	1.65	82.7	2.00	0.346	
Toluene*	<0.050	0.050	01/29/2019	ND	1.70	84.8	2.00	1.23	
Ethylbenzene*	<0.050	0.050	01/29/2019	ND	1.70	85.0	2.00	1.04	
Total Xylenes*	<0.150	0.150	01/29/2019	ND	5.22	86.9	6.00	0.833	
Total BTEX	<0.300	0.300	01/29/2019	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	**80.0**	16.0	01/29/2019	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	01/29/2019	ND	182	91.2	200	0.296	
DRO >C10-C28*	<10.0	10.0	01/29/2019	ND	200	100	200	0.940	
EXT DRO >C28-C36	<10.0	10.0	01/29/2019	ND					

Surrogate: 1-Chlorooctane *76.4 %* *41-142*

Surrogate: 1-Chlorooctadecane *67.5 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name:	Tetra Tech	**BILL TO**	
Project Manager:	Clair Gonzales	P.O. #:	
Address:	901 W. Wall St.	Company:	Cimarex
City:	Midland	State: TX Zip: 79701	Attn: Christine Alderman
Phone #:	432-260-8634	Fax #:	Address: 600 N. Marienfield STE 600
Project #:		Project Owner: Cimarex	City: Midland
Project Name:	Laguna Deep Unit #007		State: TX Zip: 79701
Project Location:	Lea Co., NM		Phone #: 432-853-7054
Sampler Name:	Stephen Reyes		Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX 8021 B	TPH 8015 M	Chloride
H906298																	
1	Bottom Hole 1 (4' BEB)		1			X					X		1-28-19		X	X	X
2	Bottom Hole 2 (4' BEB)		1			X					X		1-28-19		X	X	X

Relinquished By:	Date: 1-28-19	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 14:45	Tamara Oldaker	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Clair.gonzales@tetratech.com
	Time:		RUSH Stephen.reyes@tetratech.com
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	1.8° #197	Sample Condition Cool: ☑ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials) TO.

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

CARDINAL Laboratories

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

January 30, 2019

CLAIR GONZALES

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: LAGUNA DEEP UNIT #007

Enclosed are the results of analyses for samples received by the laboratory on 01/29/19 14:55.

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 accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
T - 1 (0-1')	H900310-01	Soil	29-Jan-19 00:00	29-Jan-19 14:55
T - 1 (1')	H900310-02	Soil	29-Jan-19 00:00	29-Jan-19 14:55
T - 1 (2')	H900310-03	Soil	29-Jan-19 00:00	29-Jan-19 14:55
T - 1 (3')	H900310-04	Soil	29-Jan-19 00:00	29-Jan-19 14:55
T - 1 (4')	H900310-05	Soil	29-Jan-19 00:00	29-Jan-19 14:55
T - 1 (6')	H900310-06	Soil	29-Jan-19 00:00	29-Jan-19 14:55
T - 1 (8')	H900310-07	Soil	29-Jan-19 00:00	29-Jan-19 14:55

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

T - 1 (0-1')

H900310-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**16.0**		16.0	mg/kg	4	9013001	AC	30-Jan-19	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*101 %*	*73.3-129*		*9012911*	ms	*30-Jan-19*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	9012910	MS	30-Jan-19	8015B	
DRO >C10-C28*	**26.9**		10.0	mg/kg	1	9012910	MS	30-Jan-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9012910	MS	30-Jan-19	8015B	
Surrogate: 1-Chlorooctane			*85.7 %*	*41-142*		*9012910*	MS	*30-Jan-19*	*8015B*	
Surrogate: 1-Chlorooctadecane			*87.4 %*	*37.6-147*		*9012910*	MS	*30-Jan-19*	*8015B*	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

T - 1 (1')

H900310-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	<16.0		16.0	mg/kg	4	9013001	AC	30-Jan-19	4500-Cl-B	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.050		0.050	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9012911	ms	30-Jan-19	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*99.7 %*	*73.3-129*		*9012911*	ms	*30-Jan-19*	*8021B*	
Petroleum Hydrocarbons by GC FID										
GRO C6-C10*	<10.0		10.0	mg/kg	1	9012910	MS	30-Jan-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9012910	MS	30-Jan-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9012910	MS	30-Jan-19	8015B	
Surrogate: 1-Chlorooctane			*88.7 %*	*41-142*		*9012910*	MS	*30-Jan-19*	*8015B*	
Surrogate: 1-Chlorooctadecane			*91.2 %*	*37.6-147*		*9012910*	MS	*30-Jan-19*	*8015B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

T - 1 (2')

H900310-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**48.0**		16.0	mg/kg	4	9013001	AC	30-Jan-19	4500-Cl-B	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

T - 1 (3')

H900310-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**48.0**		16.0	mg/kg	4	9013001	AC	30-Jan-19	4500-Cl-B	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

T - 1 (4')

H900310-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**32.0**		16.0	mg/kg	4	9013001	AC	30-Jan-19	4500-Cl-B	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

T - 1 (6')

H900310-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**48.0**		16.0	mg/kg	4	9013001	AC	30-Jan-19	4500-Cl-B	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

T - 1 (8')

H900310-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride	**32.0**		16.0	mg/kg	4	9013001	AC	30-Jan-19	4500-Cl-B	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9013001 - General Prep - Wet Chem										
Blank (9013001-BLK1)				Prepared & Analyzed: 30-Jan-19						
Chloride	ND	16.0	mg/kg							
LCS (9013001-BS1)				Prepared & Analyzed: 30-Jan-19						
Chloride	400	16.0	mg/kg	400		100	80-120			
LCS Dup (9013001-BSD1)				Prepared & Analyzed: 30-Jan-19						
Chloride	416	16.0	mg/kg	400		104	80-120	3.92	20	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

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
Batch 9012911 - Volatiles										
Blank (9012911-BLK1)				Prepared & Analyzed: 29-Jan-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)	*0.100*		mg/kg	*0.100*		*100*	*73.3-129*			
LCS (9012911-BS1)				Prepared & Analyzed: 29-Jan-19						
Benzene	1.94	0.050	mg/kg	2.00		96.9	72.2-131			
Toluene	2.00	0.050	mg/kg	2.00		99.9	71.7-126			
Ethylbenzene	2.00	0.050	mg/kg	2.00		100	68.9-126			
Total Xylenes	6.10	0.150	mg/kg	6.00		102	71.4-125			
Surrogate: 4-Bromofluorobenzene (PID)	*0.101*		mg/kg	*0.100*		*101*	*73.3-129*			
LCS Dup (9012911-BSD1)				Prepared & Analyzed: 29-Jan-19						
Benzene	1.96	0.050	mg/kg	2.00		98.0	72.2-131	1.04	6.91	
Toluene	2.01	0.050	mg/kg	2.00		100	71.7-126	0.468	7.12	
Ethylbenzene	2.01	0.050	mg/kg	2.00		101	68.9-126	0.445	7.88	
Total Xylenes	6.16	0.150	mg/kg	6.00		103	71.4-125	0.949	7.46	
Surrogate: 4-Bromofluorobenzene (PID)	*0.101*		mg/kg	*0.100*		*101*	*73.3-129*			

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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: LAGUNA DEEP UNIT #007 Project Number: 212C-MD-01585 Project Manager: CLAIR GONZALES Fax To: (432) 682-3946	Reported: 30-Jan-19 10:28

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
Batch 9012910 - General Prep - Organics										
Blank (9012910-BLK1)				Prepared & Analyzed: 29-Jan-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	*45.8*		mg/kg	*50.0*		*91.5*	*41-142*			
Surrogate: 1-Chlorooctadecane	*44.2*		mg/kg	*50.0*		*88.4*	*37.6-147*			
LCS (9012910-BS1)				Prepared & Analyzed: 29-Jan-19						
GRO C6-C10	212	10.0	mg/kg	200		106	76.5-133			
DRO >C10-C28	220	10.0	mg/kg	200		110	72.9-138			
Total TPH C6-C28	432	10.0	mg/kg	400		108	78-132			
Surrogate: 1-Chlorooctane	*47.4*		mg/kg	*50.0*		*94.9*	*41-142*			
Surrogate: 1-Chlorooctadecane	*45.9*		mg/kg	*50.0*		*91.7*	*37.6-147*			
LCS Dup (9012910-BSD1)				Prepared & Analyzed: 29-Jan-19						
GRO C6-C10	220	10.0	mg/kg	200		110	76.5-133	3.80	20.6	
DRO >C10-C28	209	10.0	mg/kg	200		105	72.9-138	5.00	20.6	
Total TPH C6-C28	429	10.0	mg/kg	400		107	78-132	0.592	18	
Surrogate: 1-Chlorooctane	*47.0*		mg/kg	*50.0*		*94.0*	*41-142*			
Surrogate: 1-Chlorooctadecane	*45.8*		mg/kg	*50.0*		*91.6*	*37.6-147*			

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

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

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record

Page 1 of 1

Tetra Tech, Inc.

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

Client Name: Cimarex	**Site Manager:** Clair Gonzalez
Project Name: Laguna Deep #007	
Project Location: (county, state) Lea Co., New Mexico	**Project #:** 212C-MD-01585
Invoice to: Cimarex	
Receiving Laboratory: Cardinal Labs	**Sampler Signature:** Stephen Reyes
Comments:	

H900130

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	# CONTAINERS	FILTERED (Y/N)
1	T-1 (0-1')	1/24/19			X			X	1	N
2	T-1 (1')	1/24/19			X			X	1	N
3	T-1 (2')	1/24/19			X			X	1	N
4	T-1 (3')	1/24/19			X			X	1	N
5	T-1 (4')	1/24/19			X			X	1	N
6	T-1 (6')	1/24/19			X			X	1	N
7	T-1 (8')	1/24/19			X			X	1	N

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
1	X		X												X							
2	X		X												X							
3															X							
4															X							
5															X							
6															X							
7															X							

Relinquished by:	Date: 1-24-19	Time:	Received by: Samara Dalton 1-29-19
Relinquished by:	Date:	Time:	Received by: Date: Time:
Relinquished by:	Date:	Time:	Received by: Date: Time:

LAB USE ONLY
Sample Temperature
#97 T°
-0.6°

REMARKS:
- [x] RUSH: Same Day (24 hr) 48 hr 72 hr
- [ ] Rush Charges Authorized
- [ ] Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

ORIGINAL COPY

Photos

Cimarex Energy
Laguna Deep #7
Lea County, New Mexico

TETRA TECH

Area of SP-5 and SP-4 Excavation – View to Northwest

Area SP-5 and SP-4 Liner Installation – View to Southeast

Cimarex Energy
Laguna Deep #7
Lea County, New Mexico

TETRA TECH

Reconstructed Tank Battery Area of SP-5 – View to Northeast

Area of SP-4 after reconsctruction – View East

Cimarex Energy
Laguna Deep #7
Lea County, New Mexico

TETRA TECH

SP-3 Excavation – View to Northwest

SP-3 Excavation – View Southwest

Cimarex Energy
Laguna Deep #7
Lea County, New Mexico

TETRA TECH

SP-2 Excavation – View to Northwest

SP-2 Excavation – View East

Cimarex Energy
Laguna Deep #7
Lea County, New Mexico

TETRA TECH

Area of T-1 – View to Northwest

Area of T-1 – View South

Cimarex Energy
Laguna Deep #7
Lea County, New Mexico

Area of SP-2 Liner Installation – View to South

Area of SP-2 Liner Installation – View Southeast

Cimarex Energy
Laguna Deep #7
Lea County, New Mexico

TETRA TECH

Area of SP-3 Liner Installation – View to North

Area of SP-3 Liner Installation – View East

Appendix A: Agency Forms

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

State of New Mexico
Energy Minerals and Natural Resources

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

REVIEWED
By Kristen Lynch at 2:29 pm, Sep 27, 2016

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Cimarex Energy	Contact Christine Alderman
Address 600 N Marienfeld Ste 600 Midland TX	Telephone No. 432-853-7059
Facility Name Laguna Deep 7	Facility Type Production

Surface Owner	Mineral Owner	API No. 30-025-36255

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	36	19S	33E	1980	N	950	W	Lea

Latitude 32.61846 **Longitude** -103.62232

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 210 bbls	Volume Recovered 210 bbls+
Source of Release fire burned FG PW tank	Date and Hour of Occurrence 9/17/2016	Date and Hour of Discovery 9/17/2016
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Kristen Lynch/Jaime Keyes	
By Whom? Gloria Garza	Date and Hour 9/18/2016 11:00am	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.

Describe Cause of Problem and Remedial Action Taken. Lightning struck a fiberglass PW tank burning it to the ground. Fire departments finally put fire out. Approximately 210 bbls of produced water was in the tank before the fire. Fluids were inside an UNLINED berm. Approximately 10 bbls ran over the berm into the pasture area approximately 12" wide and 40' long (mixture of PW and water from fire department)

Describe Area Affected and Cleanup Action Taken. Crews were on location the next day and used shovels to turn soil in pasture area. Samples were collected of impacted areas and sent for analysis. A work plan will be developed and submitted.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Christine Alderman

Printed Name: Christine Alderman

Title: ESH Supervisor

E-mail Address: calderman@cimarex.com

Date: 9/21/2016 Phone: 432-853-7059

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Kristen Lynch

Approval Date: 9/27/2016 Expiration Date: 11/27/2016

NMOCD Accepts Discrete Samples Only
Conditions of Approval:
Please submit Remediation Plan no later than 10/27/2016
Notify NMOCD prior to all sampling

Attached ☐
1RP 4455
nKL1627151743
pKL1627151988

* Attach Additional Sheets If Necessary

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

Form C-141 State of New Mexico
Page 4 Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature: gloria garza Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Form C-141 State of New Mexico
Page 6 Oil Conservation Division

Incident ID	nKL1627151743
District RP	
Facility ID	
Application ID	

Closure

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

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

☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☐ Description of remediation activities

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

Printed Name: _____ Title: _____

Signature: garcia garza Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: Bradford Billings Date: 09/07/2021

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

Appendix B: Groundwater Data

Water Well Data
Average Depth to Groundwater (ft)
Cimarex - Laguna Deep #7

18 South 32 East

6	5	4 65	3	2	1
7 460 82	8	9	10	11	12
18	17	16 84	15	14	13
19	20 164	21	22 429	23	24
30	29	28	27	26	25
31	32	33	34 117	35	36

18 South 33 East

6	5	4	3 60	2	1
7	8 100	9	10 62	11 46	12 143 140
18	17 85	16	15	14 36	13 60
19 >140	20	21	22	23	24 195
30 35	29	28	27	26	25
31	32	33 177	34	35	36

18 South 34 East

6 130	5 105	4	3 87	2 102	1 107
7 83	8 148	9	10 148	11 110	12 115 92
18 125	17	16 108	15 114 110	14 103	13 96
19 105	20 125	21	22	23	24
30	29	28	27 112	26	25 117
31	32	33	34	35 118	36

19 South 32 East

6	5	4	3	2	1
7	8 365	9	10	11	12
18	17	16	15	14	13 135 dry
19 102	20 345	21	22	23	24
30	29	28	27	26	25
31	32	33	34 250	35	36

19 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18 340	17 116	16	15	14	13
19	20	21	22	23	24
30	29	28 130 dry	27	26 92 84	25
31	32 185	33	34	35	36

19 South 34 East

6 244	5	4	3	2 100	1
7	8	9 29 28.6	10	11 123	12 60
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25 28
31 110 65 147	32	33	34	35	36

20 South 32 East

6	5	4	3	2	1 21.8
7	8	9	10	11	12
18 89	17	16	15	14	13
19	20	21	22	23	24
30 9.9	29	28	27 12.3	26	25
31	32	33	34	35	36 46

20 South 33 East

6	5 325 278	4	3	2	1
7	8	9	10	11	12
18 125	17	16	15	14	13
19	20	21	22	23	24 +300
30	29	28	27	26	25
31	32	33	34	35	36

20 South 34 East

6	5	4 125	3	2	1
7	8	9	10	11	12
18	17 128 140	16	15	14 150	13
19	20	21	22	23	24 270
30	29	28	27	26	25
31	32	33	34 82	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

121 Abandoned Waterwell (recently measured)

National Water Information System: Web Interface

Click to hideNews Bulletins

- Please see news on new formats
- Full News

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 323737103373001

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

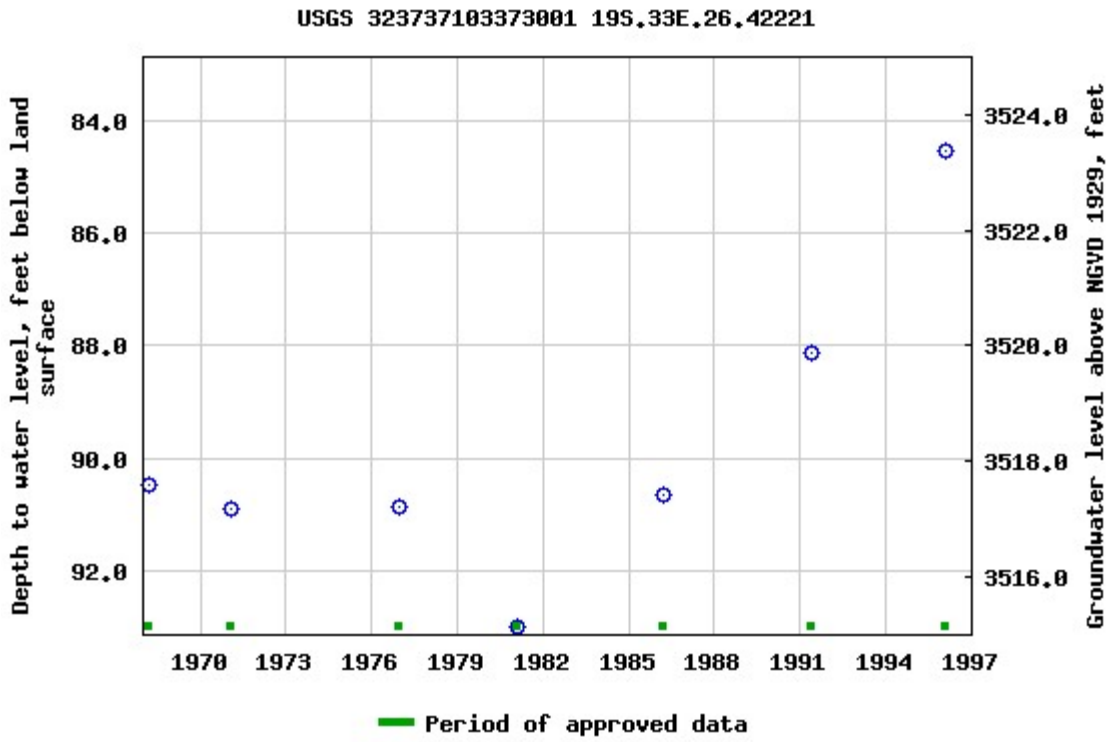
USGS 323737103373001 19S.33E.26.42221

Available data for this site Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°37'51", Longitude 103°37'33" NAD27
Land-surface elevation 3,608.00 feet above NGVD29
The depth of the well is 100 feet below land surface.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

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



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

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

Accessibility Plug-Ins FOIA Privacy Policies and Notices

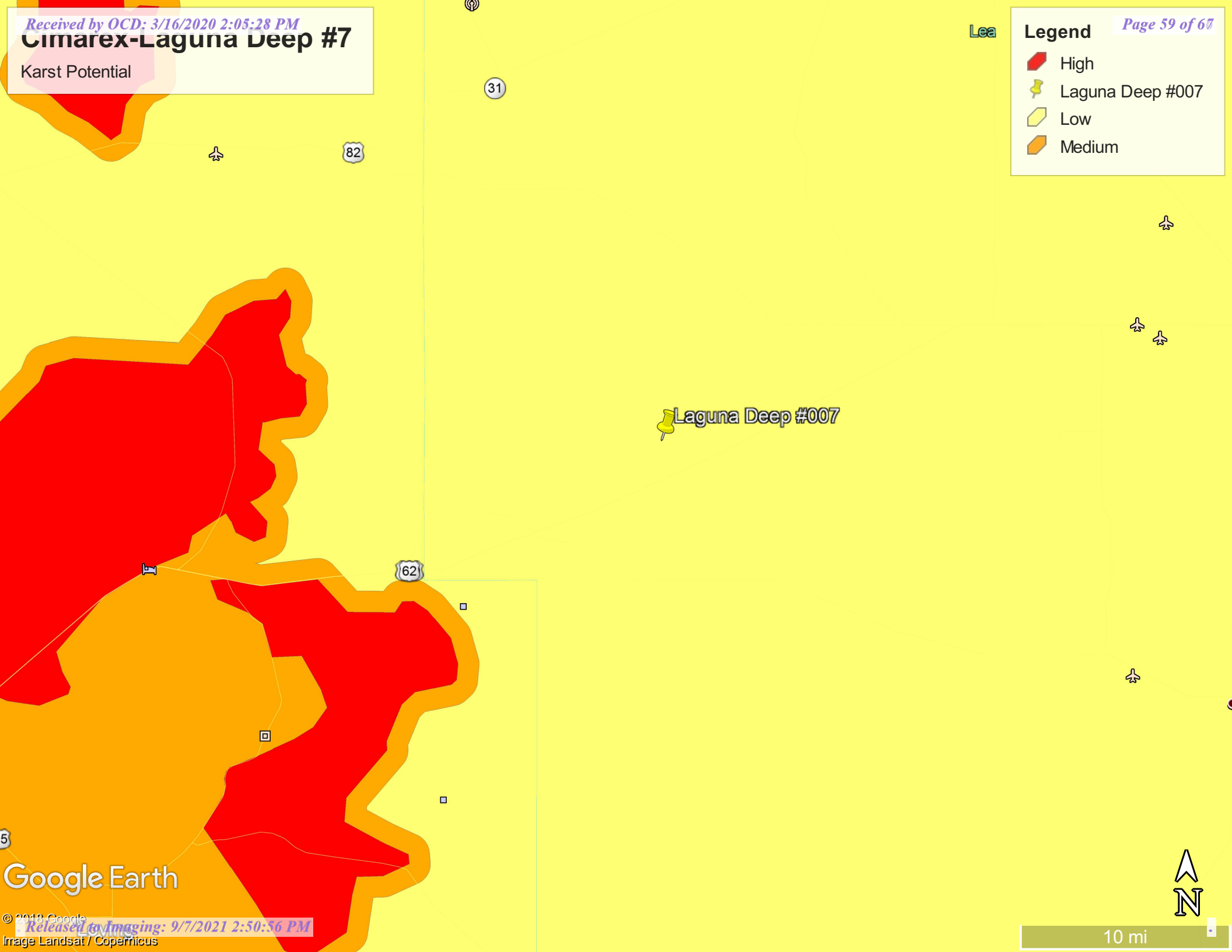
U.S. Department of the Interior | U.S. Geological Survey

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

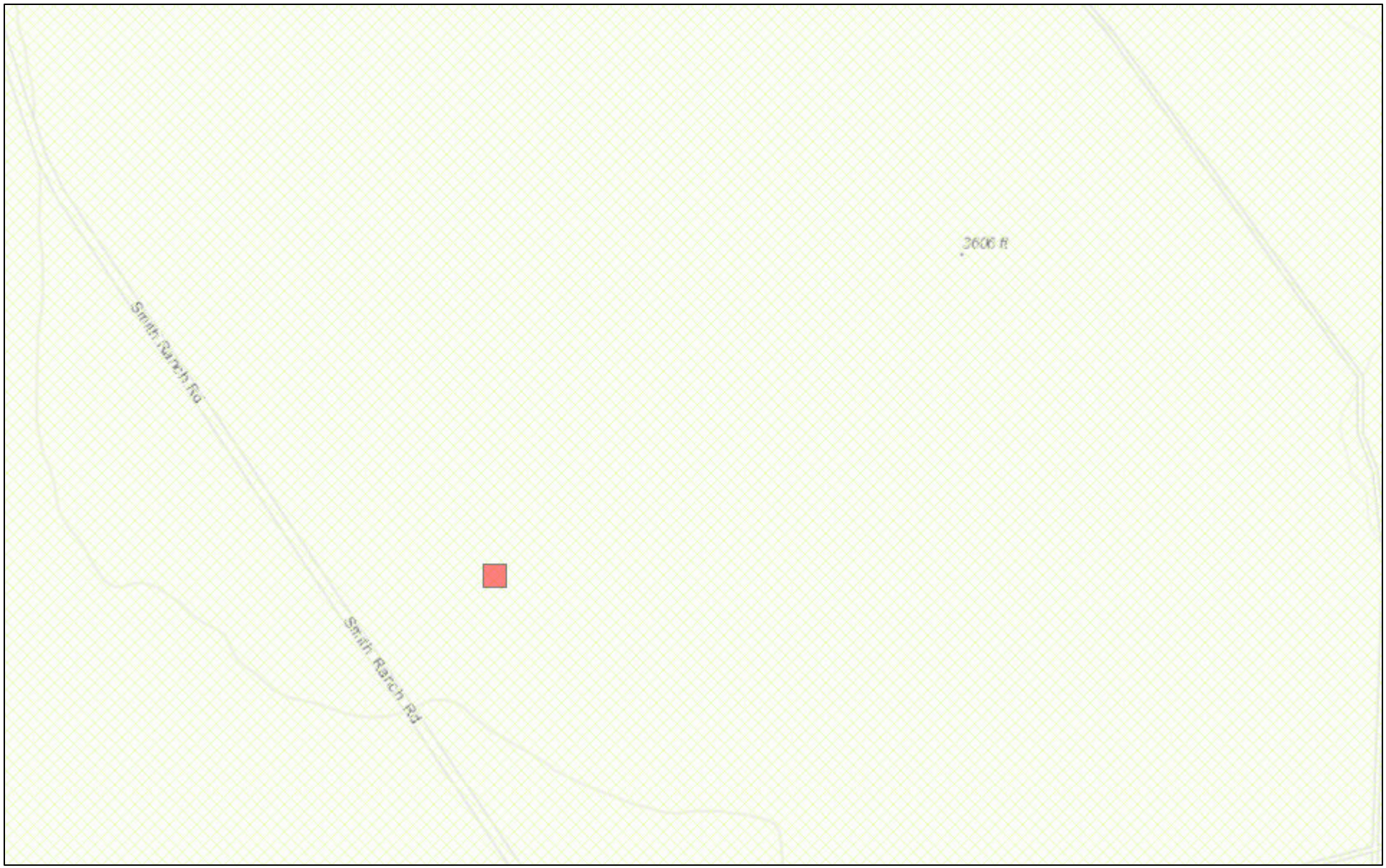
Page Contact Information: New Mexico Water Data Maintainer
Page Last Modified: 2019-01-30 17:16:15 EST
1.43 1.2 nadww01

Cimarex-Laguna Deep #7

Karst Potential



New Mexico NFHL Data



January 31, 2019

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

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

Appendix C:
Specific Remediation Requirements

Lea County, New Mexico

KD—Kermit-Palomas fine sands, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: dmpv
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 70 percent
Palomas and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Calcareous sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sand
C - 8 to 60 inches: fine sand

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A
Ecological site: Deep Sand (R042XC005NM)
Hydric soil rating: No

Description of Palomas

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 16 inches: fine sand
Bt - 16 to 60 inches: sandy clay loam
Bk - 60 to 66 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 50 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: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Pyote

Percent of map unit: 4 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Maljamar

Percent of map unit: 4 percent
Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

Dune land

Percent of map unit: 1 percent
Hydric soil rating: No

Palomas

Percent of map unit: 1 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

NMSLO Seed Mix Deep Sand (DS)

1.1 BLOW SAND SITES REVEGETATION PLAN (BS)

Use this Revegetation Plan with the following ESD's:
CP2 – Sandy Plains, Sandhills, Deep Sand, Shallow Plains
HP3 – Loamy Sand, Sandy Plains, Sandhills, Deep Sand
SD3 – Loamy Sand, Deep Sand, Sandhills, Salt Meadow

Soil Texture: Fine Sand, Sand, Course Sand

Revegetation Procedures:

I. **For flat or gently sloping areas with slopes less than or equal to 3H:1V:**
1. **Soil Amendments:** Apply composted manure or similar at the rate of 30.0 air dry tons/acre.
2. **Fertilize:** Type 2
3. **Mulch** – Grass Hay mulch applied at 2.0 tons/acre
4. **Prepare the seedbed and incorporate mulch, fertilizer, and soil amendments**:
    a. Scarify
    b. Disc (thoroughly mix mulch, fertilizer, and soil amendments in top 6-8 inches of soil before proceeding).
5. **Drill Seed** – use rangeland drill and apply Drill box seed to 0.5-0.75 inch depth, apply small seed to surface and lightly cover with drag chains or packer wheels or equal.
6. **Mulch** – Grass Hay mulch applied at 2.0 tons/acre
7. **Crimp**
8. **Tackify** – tackify to minimize risk of mulch blowing and to hold soil and mulch in place until vegetation begins to establish.
9. **Wind Fence** – Install wind fence.

DEEP SAND (DS) SITES SEED MIXTURE:

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
Grasses:			
Sand bluestem	**Elida, VNS, So.**	**4.0**	**F**
Sideoats grama	**Vaughn, El Reno**	**4.0**	**F**
Little bluestem	**Cimarron, Pastura**	**3.0**	**F**
Plains bristlegrass	**VNS, Southern**	**1.0**	**D**
Sand dropseed	**VNS, Southern**	**2.0**	**S**
Blue grama	**Lovington**	**1.0**	**D**
Forbs:			
Firewheel (Gaillardia)	**VNS, Southern**	**1.0**	**D**
Anuual Sunflower	**VNS, Southern**	**0.5**	**D**
Prairie Conflower	**VNS, Southern**	**0.5**	**D**
	Total PLS/acre	**17**	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box
VNS = Variety Not Stated, PLS = Pure Live Seed

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

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

Operator: CIMAREX ENERGY CO. OF COLORADO 600 N. Marienfeld Street Midland, TX 79701	OGRID: 162683
	Action Number: 4537
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bbillings	Approved, but please incorporate all available data in future reports.	9/7/2021