

SITE INFORMATION

Report Type: Closure Report 1RP-5385

General Site Information:

Site:	Hallertau 4 Fed 8H Tank Battery			
Company:	Cimarex Energy			
Section, Township and Range	Unit A	Sec. 04	T 26S	R 32E
API No:	30-025-40477			
County:	Lea County			
GPS:	32.078811°		-103.673072°	
Surface Owner:	Federal			
Directions:	From the intersection of Pipeline Rd and J-1, head west on Pipeline Rd for 1.75 miles, turn right (north) onto unnamed lease road and go 600 feet (crossing a pad), go 440 feet to the northeast and arrive on location.			

Release Data:

Date Released:	2/25/2019
Type Release:	Produced Water
Source of Contamination:	Flanged ball valve
Fluid Released:	37 bbls
Fluids Recovered:	30 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@Tetrattech.com

Site Characterization

Depth to Groundwater:	Greater than 100' below surface
Karst Potential:	High

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



April 8, 2019

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

Re: Closure Report for the Cimarex Energy, Hallertau 4 Fed 8H TB, Unit A, Section 04, Township 26 South, Range 32 East, Lea County, New Mexico. 1RP-5385.

Ms. Garza:

Tetra Tech, Inc. (Tetra Tech) was contacted by Cimarex Energy (Cimarex) to assess a release that occurred at Hallertau 4 Fed 8H TB, Unit A, Section 04, Township 26 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are 32.067222°, -103.702788°. The site location is shown on Maps 1 and 2.

Background

According to the State of New Mexico Initial C-141, the release was discovered on February 25, 2019, and released approximately 37 barrels of produced water from a 3" carbon flanged ball valve that developed a leak due to corrosion. Thirty (30) barrels of fluid were recovered. As an immediate response, the area was surficially hydro-vacuumed to remove the surficial impact. Deeper removal by hydro-vacuum could not be performed due to a dense formation in the area. The release impacted an area on the facility pad measuring approximately 90' x 120'. A copy of the initial C-141 Form is 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 located in a high karst potential area. The nearest well listed is in Section 06 on the New Mexico Office of the State Engineer's (NMOSE) database, approximately 0.95 miles west of the site, and has a reported depth to groundwater of 155 feet below surface. The site characterization data is shown in Appendix B.

Tetra Tech

901 West Wall St, Ste 100 Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.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 karst potential, the proposed RRAL for TPH is 100 mg/kg (GRO + DRO + MRO). Additionally, based on the karst potential in the area, the proposed RRAL for chlorides is 600 mg/kg.

Soil Assessment and Analytical Results

On March 11, 2019, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of seven (7) composite samples (CS 1 through CS 7) were collected every 200 ft² inside the spill footprint. Additionally, four (4) horizontal delineation samples (NCS, ECS, SCS, and WCS) were collected outside the spill footprint. All samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included. The results of the sampling are summarized in Table 1. The sample location is shown on Plat 3.

Referring to Table 1, none of the samples showed benzene, total BTEX, or TPH concentrations above the RRAL's. However, the composite samples (CS 3, CS 5, CS 6, and CS 7) showed chloride concentrations slightly above 600 mg/kg, with concentrations of 620 mg/kg, 707 mg/kg, 604 mg/kg, and 746 mg/kg, respectively. The areas of (CS 1, CS 2, CS 4, NCS, SCS, WCS, and ECS) did not show any chloride concentrations above 600 mg/kg.

Conclusion

The depth to groundwater at the site is approximately 155' below ground surface and no benzene, total BTEX, or TPH above the RRAL's were detected. Chloride concentrations slightly above the RRAL were detected in areas (CS 3, CS 5, CS 6, and CS 7), however based on the depth to groundwater and the minimal concentrations detected, the chlorides do not appear to be an environmental concern.



Based on the laboratory results and the hydro-vacuum 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

A handwritten signature in blue ink that reads 'Clair Gonzales'.

Clair Gonzales,
Project Manager

A handwritten signature in blue ink that reads 'Johnathon P. Kell'.

Johnathon Kell,
Geologist II

cc: Shelly Tucker – BLM
Mike Bratcher - NMOCD

Maps/Plats



Cavern City Air Terminal

Eddy

Lea

HALLERTAU 4 FED 8H TANK BATTERY

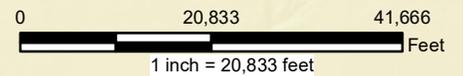


NEW MEXICO
TEXAS

NEW MEXICO
TEXAS

Loving

Reeves



LEGEND

- SITE LOCATION

CIMAREX

FIGURE 1

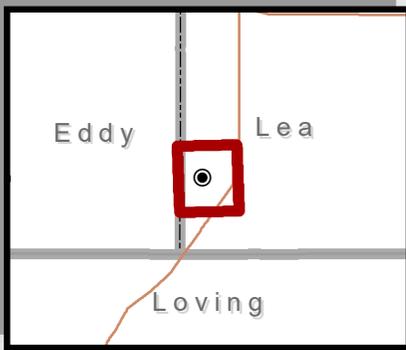
HALLERTAU 4 FEDERAL 8H TANK BATTERY
(32.067222° , -103.702788°)

OVERVIEW MAP

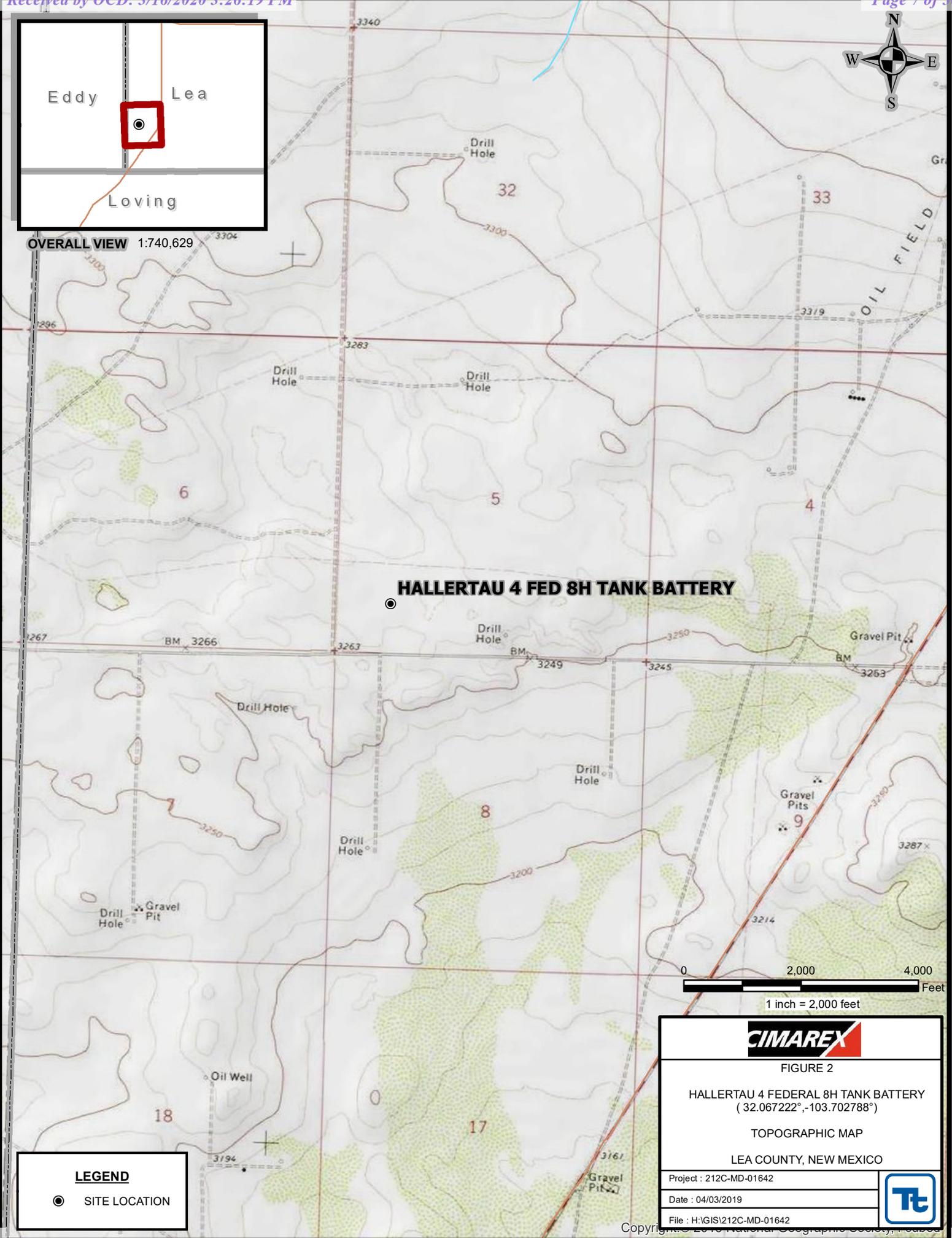
LEA COUNTY, NEW MEXICO

Project : 212C-MD-01642	
Date : 04/03/2019	
File : H:\GIS\212C-MD-01642	

Sources: Esri, HERE, Garmin, Japan, METI, Esri China (Hong Kong), Swatch, Bing, OpenStreetMap contributors, and the GIS User Community



OVERALL VIEW 1:740,629



HALLERTAU 4 FED 8H TANK BATTERY

LEGEND

● SITE LOCATION

CIMAREX

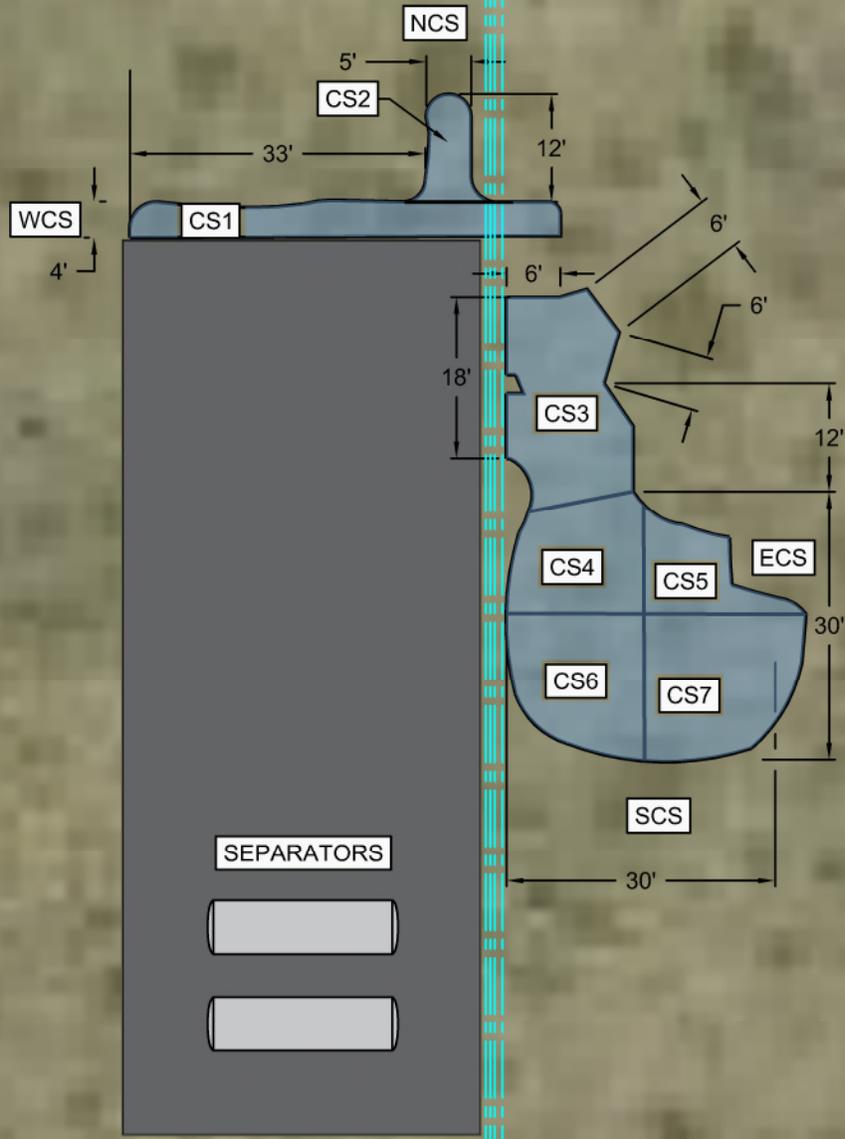
FIGURE 2

HALLERTAU 4 FEDERAL 8H TANK BATTERY
(32.067222°, -103.702788°)

TOPOGRAPHIC MAP

LEA COUNTY, NEW MEXICO

Project : 212C-MD-01642	
Date : 04/03/2019	
File : H:\GIS\212C-MD-01642	



LEGEND

- SPILL AREA
- EQUIPMENT
- ABOVEGROUND POLY LINE

FIGURE 3	
HALLERTAU 4 FEDERAL 8H TANK BATTERY (32.067222°, 103.702788°)	
SPILL ASSESSMENT MAP LEA COUNTY, NEW MEXICO	
Project: 212C-MD-01642	
Date: 04/08/2019	
File: H:\GIS\212C-MD-01642	

Lab Analysis

**PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701**



Analytical Report

Prepared for:

Christine Alderman
Cimarex
600 N. Marinfeld, Ste. 600
Midland, TX 79701

Project: Hallertau 4 Fed CTB

Project Number: [none]

Location: Lea Co. NM

Lab Order Number: 9C11022



NELAP/TCEQ # T104704516-18-9

Report Date: 03/19/19

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS 1 (0-6")	9C11022-01	Soil	03/11/19 00:00	03-11-2019 16:41
CS 2 (0-6")	9C11022-02	Soil	03/11/19 00:00	03-11-2019 16:41
CS 3 (0-6")	9C11022-03	Soil	03/11/19 00:00	03-11-2019 16:41
CS 4 (0-6")	9C11022-04	Soil	03/11/19 00:00	03-11-2019 16:41
CS 5 (0-6")	9C11022-05	Soil	03/11/19 00:00	03-11-2019 16:41
CS 6 (0-6")	9C11022-06	Soil	03/11/19 00:00	03-11-2019 16:41
CS 7 (0-6")	9C11022-07	Soil	03/11/19 00:00	03-11-2019 16:41
NCS (0-6")	9C11022-08	Soil	03/11/19 00:00	03-11-2019 16:41
SCS (0-6")	9C11022-09	Soil	03/11/19 00:00	03-11-2019 16:41
WCS (0-6")	9C11022-10	Soil	03/11/19 00:00	03-11-2019 16:41
ECS (0-6")	9C11022-11	Soil	03/11/19 00:00	03-11-2019 16:41

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

CS 1 (0-6")
9C11022-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		107 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		83.6 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	171	1.04	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	4.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.0	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: 1-Chlorooctane		96.7 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: o-Terphenyl		129 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	03/16/19	03/17/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

CS 2 (0-6")
9C11022-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		107 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		96.8 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	184	1.02	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	2.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.5	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: 1-Chlorooctane		99.6 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: o-Terphenyl		131 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	03/16/19	03/17/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

CS 3 (0-6")
9C11022-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	0.00131	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
<i>Surrogate: 4-Bromofluorobenzene</i>		120 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
<i>Surrogate: 1,4-Difluorobenzene</i>		96.4 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	620	1.06	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	6.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.6	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
<i>Surrogate: 1-Chlorooctane</i>		98.9 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	
<i>Surrogate: o-Terphenyl</i>		126 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	03/16/19	03/17/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

CS 4 (0-6")
9C11022-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		90.7 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		109 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	564	1.05	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	5.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.3	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C12-C28	29.5	26.3	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: 1-Chlorooctane		101 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: o-Terphenyl		135 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	29.5	26.3	mg/kg dry	1	[CALC]	03/16/19	03/17/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

CS 5 (0-6")
9C11022-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	ND	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		91.6 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		111 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	707	1.06	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	6.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.6	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: 1-Chlorooctane		98.4 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	
Surrogate: o-Terphenyl		131 %	70-130		P9C1606	03/16/19	03/17/19	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	03/16/19	03/17/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

CS 6 (0-6")
9C11022-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		102 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		118 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	604	5.21	mg/kg dry	5	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	4.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.0	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		77.6 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: o-Terphenyl		99.4 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	03/16/19	03/16/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

CS 7 (0-6")
9C11022-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		88.9 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		108 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	746	1.05	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	5.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.3	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		71.9 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: o-Terphenyl		89.5 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	03/16/19	03/16/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

NCS (0-6")
9C11022-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Toluene	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		87.7 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		99.0 %	75-125		P9C1604	03/16/19	03/16/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	63.7	1.03	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	3.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.8	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C12-C28	ND	25.8	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		72.9 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: o-Terphenyl		91.2 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.8	mg/kg dry	1	[CALC]	03/16/19	03/16/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

SCS (0-6")
9C11022-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Toluene	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Ethylbenzene	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Xylene (p/m)	ND	0.00204	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Xylene (o)	ND	0.00102	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		116 %	75-125		P9C1604	03/16/19	03/17/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		87.6 %	75-125		P9C1604	03/16/19	03/17/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	486	10.2	mg/kg dry	10	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	2.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.5	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		67.0 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	S-GC
Surrogate: o-Terphenyl		82.3 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	03/16/19	03/16/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

WCS (0-6")
9C11022-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Toluene	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Ethylbenzene	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Xylene (p/m)	ND	0.00206	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Xylene (o)	ND	0.00103	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		96.3 %	75-125		P9C1604	03/16/19	03/17/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		82.7 %	75-125		P9C1604	03/16/19	03/17/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	34.5	1.03	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	3.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	25.8	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C12-C28	41.4	25.8	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C28-C35	ND	25.8	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		73.9 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: o-Terphenyl		93.0 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	41.4	25.8	mg/kg dry	1	[CALC]	03/16/19	03/16/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

ECS (0-6")
9C11022-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	--------	-------

Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Toluene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P9C1604	03/16/19	03/17/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		99.7 %	75-125		P9C1604	03/16/19	03/17/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		92.7 %	75-125		P9C1604	03/16/19	03/17/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	15.1	1.04	mg/kg dry	1	P9C1509	03/15/19	03/18/19	EPA 300.0	
% Moisture	4.0	0.1	%	1	P9C1304	03/13/19	03/13/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.0	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: 1-Chlorooctane		74.8 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Surrogate: o-Terphenyl		92.7 %	70-130		P9C1607	03/16/19	03/16/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	03/16/19	03/16/19	calc	

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

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

Batch P9C1604 - General Preparation (GC)**Blank (P9C1604-BLK1)**

Prepared & Analyzed: 03/16/19

Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	0.0515		"	0.0600		85.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.0615		"	0.0600		102	75-125			

LCS (P9C1604-BS1)

Prepared & Analyzed: 03/16/19

Benzene	0.105	0.00100	mg/kg wet	0.100		105	70-130			
Toluene	0.107	0.00100	"	0.100		107	70-130			
Ethylbenzene	0.110	0.00100	"	0.100		110	70-130			
Xylene (p/m)	0.215	0.00200	"	0.200		108	70-130			
Xylene (o)	0.113	0.00100	"	0.100		113	70-130			
Surrogate: 4-Bromofluorobenzene	0.0598		"	0.0600		99.8	75-125			
Surrogate: 1,4-Difluorobenzene	0.0589		"	0.0600		98.1	75-125			

LCS Dup (P9C1604-BS1)

Prepared & Analyzed: 03/16/19

Benzene	0.111	0.00100	mg/kg wet	0.100		111	70-130	5.07	20	
Toluene	0.113	0.00100	"	0.100		113	70-130	5.00	20	
Ethylbenzene	0.113	0.00100	"	0.100		113	70-130	2.57	20	
Xylene (p/m)	0.222	0.00200	"	0.200		111	70-130	3.29	20	
Xylene (o)	0.119	0.00100	"	0.100		119	70-130	4.71	20	
Surrogate: 1,4-Difluorobenzene	0.0622		"	0.0600		104	75-125			
Surrogate: 4-Bromofluorobenzene	0.0628		"	0.0600		105	75-125			

Calibration Blank (P9C1604-CCB1)

Prepared & Analyzed: 03/16/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	0.0511		"	0.0600		85.1	75-125			
Surrogate: 4-Bromofluorobenzene	0.0576		"	0.0600		95.9	75-125			

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

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

Batch P9C1604 - General Preparation (GC)**Calibration Check (P9C1604-CCV1)**

Prepared & Analyzed: 03/16/19

Benzene	0.106	0.00100	mg/kg wet	0.100		106	80-120			
Toluene	0.113	0.00100	"	0.100		113	80-120			
Ethylbenzene	0.116	0.00100	"	0.100		116	80-120			
Xylene (p/m)	0.235	0.00200	"	0.200		117	80-120			
Xylene (o)	0.120	0.00100	"	0.100		120	80-120			
Surrogate: 1,4-Difluorobenzene	0.0621		"	0.0600		103	75-125			
Surrogate: 4-Bromofluorobenzene	0.0595		"	0.0600		99.2	75-125			

Calibration Check (P9C1604-CCV2)

Prepared: 03/16/19 Analyzed: 03/17/19

Benzene	0.106	0.00100	mg/kg wet	0.100		106	80-120			
Toluene	0.110	0.00100	"	0.100		110	80-120			
Ethylbenzene	0.110	0.00100	"	0.100		110	80-120			
Xylene (p/m)	0.217	0.00200	"	0.200		109	80-120			
Xylene (o)	0.116	0.00100	"	0.100		116	80-120			
Surrogate: 1,4-Difluorobenzene	0.0652		"	0.0600		109	75-125			
Surrogate: 4-Bromofluorobenzene	0.0591		"	0.0600		98.5	75-125			

Calibration Check (P9C1604-CCV3)

Prepared: 03/16/19 Analyzed: 03/17/19

Benzene	0.109	0.00100	mg/kg wet	0.100		109	80-120			
Toluene	0.107	0.00100	"	0.100		107	80-120			
Ethylbenzene	0.120	0.00100	"	0.100		120	80-120			
Xylene (p/m)	0.200	0.00200	"	0.200		100	80-120			
Xylene (o)	0.116	0.00100	"	0.100		116	80-120			
Surrogate: 1,4-Difluorobenzene	0.0672		"	0.0600		112	75-125			
Surrogate: 4-Bromofluorobenzene	0.0626		"	0.0600		104	75-125			

Matrix Spike (P9C1604-MS1)

Source: 9C14001-02

Prepared: 03/16/19 Analyzed: 03/17/19

Benzene	0.0883	0.00103	mg/kg dry	0.103	ND	85.7	80-120			
Toluene	0.0858	0.00103	"	0.103	ND	83.2	80-120			
Ethylbenzene	0.110	0.00103	"	0.103	ND	107	80-120			
Xylene (p/m)	0.163	0.00206	"	0.206	ND	78.8	80-120			
Xylene (o)	0.0888	0.00103	"	0.103	ND	86.1	80-120			
Surrogate: 4-Bromofluorobenzene	0.0742		"	0.0619		120	75-125			
Surrogate: 1,4-Difluorobenzene	0.0743		"	0.0619		120	75-125			

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Organics by GC - Quality Control
Permian Basin Environmental Lab, L.P.

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

Batch P9C1604 - General Preparation (GC)

Matrix Spike Dup (P9C1604-MSD1)

Source: 9C14001-02

Prepared: 03/16/19

Analyzed: 03/17/19

Benzene	0.0855	0.00103	mg/kg dry	0.103	ND	82.9	80-120	3.27	20	
Toluene	0.0835	0.00103	"	0.103	ND	81.0	80-120	2.70	20	
Ethylbenzene	0.106	0.00103	"	0.103	ND	103	80-120	3.47	20	
Xylene (p/m)	0.157	0.00206	"	0.206	ND	76.4	80-120	3.21	20	
Xylene (o)	0.0829	0.00103	"	0.103	ND	80.4	80-120	6.88	20	
Surrogate: 1,4-Difluorobenzene	0.0712		"	0.0619		115	75-125			
Surrogate: 4-Bromofluorobenzene	0.0786		"	0.0619		127	75-125			

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

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

Batch P9C1304 - * DEFAULT PREP *****

Blank (P9C1304-BLK1)				Prepared & Analyzed: 03/13/19						
% Moisture	ND	0.1	%							
Duplicate (P9C1304-DUP1)				Source: 9C12003-09 Prepared & Analyzed: 03/13/19						
% Moisture	11.0	0.1	%		11.0			0.00	20	
Duplicate (P9C1304-DUP2)				Source: 9C12003-36 Prepared & Analyzed: 03/13/19						
% Moisture	11.0	0.1	%		11.0			0.00	20	
Duplicate (P9C1304-DUP3)				Source: 9C12006-09 Prepared & Analyzed: 03/13/19						
% Moisture	12.0	0.1	%		12.0			0.00	20	
Duplicate (P9C1304-DUP4)				Source: 9C12006-20 Prepared & Analyzed: 03/13/19						
% Moisture	8.0	0.1	%		8.0			0.00	20	

Batch P9C1509 - * DEFAULT PREP *****

Blank (P9C1509-BLK1)				Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	ND	1.00	mg/kg wet							
LCS (P9C1509-BS1)				Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	378	1.00	mg/kg wet	400		94.5	80-120			
LCS Dup (P9C1509-BSD1)				Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	390	1.00	mg/kg wet	400		97.4	80-120	3.10	20	
Duplicate (P9C1509-DUP1)				Source: 9C11014-01 Prepared: 03/15/19 Analyzed: 03/18/19						
Chloride	84.6	1.08	mg/kg dry		74.6			12.5	20	

Cimarex
 600 N. Marinfeld, Ste. 600
 Midland TX, 79701

Project: Hallertau 4 Fed CTB
 Project Number: [none]
 Project Manager: Christine Alderman

Fax: (432) 571-7832

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

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

Batch P9C1509 - * DEFAULT PREP *****

Duplicate (P9C1509-DUP2)		Source: 9C11022-04			Prepared: 03/15/19		Analyzed: 03/18/19		
Chloride	795	1.05	mg/kg dry	564		34.1		20	R3

Matrix Spike (P9C1509-MS1)		Source: 9C11014-01			Prepared: 03/15/19		Analyzed: 03/18/19		
Chloride	602	1.08	mg/kg dry	5380	74.6	9.80	80-120		QM-05

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1606 - TX 1005										
Blank (P9C1606-BLK1)										
					Prepared: 03/16/19 Analyzed: 03/17/19					
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	121		"	100		121	70-130			
Surrogate: o-Terphenyl	73.8		"	50.0		148	70-130			S-GC
LCS (P9C1606-BS1)										
					Prepared: 03/16/19 Analyzed: 03/17/19					
C6-C12	919	25.0	mg/kg wet	1000		91.9	75-125			
>C12-C28	1160	25.0	"	1000		116	75-125			
Surrogate: 1-Chlorooctane	128		"	100		128	70-130			
Surrogate: o-Terphenyl	71.9		"	50.0		144	70-130			S-GC
LCS Dup (P9C1606-BSD1)										
					Prepared: 03/16/19 Analyzed: 03/17/19					
C6-C12	929	25.0	mg/kg wet	1000		92.9	75-125	1.14	20	
>C12-C28	1170	25.0	"	1000		117	75-125	0.707	20	
Surrogate: 1-Chlorooctane	125		"	100		125	70-130			
Surrogate: o-Terphenyl	72.7		"	50.0		145	70-130			S-GC
Calibration Blank (P9C1606-CCB1)										
					Prepared: 03/16/19 Analyzed: 03/17/19					
C6-C12	8.79		mg/kg wet							
>C12-C28	14.1		"							
Surrogate: 1-Chlorooctane	120		"	100		120	70-130			
Surrogate: o-Terphenyl	73.5		"	50.0		147	70-130			S-GC
Calibration Blank (P9C1606-CCB2)										
					Prepared: 03/16/19 Analyzed: 03/18/19					
C6-C12	14.1		mg/kg wet							
>C12-C28	15.4		"							
Surrogate: 1-Chlorooctane	126		"	100		126	70-130			
Surrogate: o-Terphenyl	76.2		"	50.0		152	70-130			

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C1606 - TX 1005										
Calibration Check (P9C1606-CCV1)										
					Prepared: 03/16/19	Analyzed: 03/17/19				
C6-C12	982	25.0	mg/kg wet	1000		98.2	85-115			
>C12-C28	897	25.0	"	1000		89.7	85-115			
Surrogate: 1-Chlorooctane	121		"	100		121	70-130			
Surrogate: o-Terphenyl	63.9		"	50.0		128	70-130			
Calibration Check (P9C1606-CCV2)										
					Prepared: 03/16/19	Analyzed: 03/18/19				
C6-C12	1090	25.0	mg/kg wet	1000		109	85-115			
>C12-C28	1080	25.0	"	1000		108	85-115			
Surrogate: 1-Chlorooctane	126		"	100		126	70-130			
Surrogate: o-Terphenyl	72.7		"	50.0		145	70-130			S-GC
Calibration Check (P9C1606-CCV3)										
					Prepared: 03/16/19	Analyzed: 03/17/19				
C6-C12	1080	25.0	mg/kg wet	1000		108	85-115			
>C12-C28	984	25.0	"	1000		98.4	85-115			
Surrogate: 1-Chlorooctane	125		"	100		125	70-130			
Surrogate: o-Terphenyl	69.2		"	50.0		138	70-130			S-GC
Matrix Spike (P9C1606-MS1)										
		Source: 9C11013-07			Prepared: 03/16/19		Analyzed: 03/17/19			
C6-C12	923	129	mg/kg dry	1030	ND	89.5	75-125			QM-05
>C12-C28	2630	129	"	1030	2040	57.0	75-125			QM-05
Surrogate: 1-Chlorooctane	113		"	103		110	70-130			
Surrogate: o-Terphenyl	61.6		"	51.5		120	70-130			
Matrix Spike Dup (P9C1606-MSD1)										
		Source: 9C11013-07			Prepared: 03/16/19		Analyzed: 03/17/19			
C6-C12	926	129	mg/kg dry	1030	ND	89.9	75-125	0.396	20	QM-05
>C12-C28	2650	129	"	1030	2040	59.7	75-125	4.52	20	QM-05
Surrogate: 1-Chlorooctane	113		"	103		110	70-130			
Surrogate: o-Terphenyl	56.5		"	51.5		110	70-130			

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

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

Batch P9C1607 - TX 1005**Blank (P9C1607-BLK1)**

Prepared & Analyzed: 03/16/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	102		"	100		102	70-130			
Surrogate: o-Terphenyl	57.1		"	50.0		114	70-130			

LCS (P9C1607-BS1)

Prepared & Analyzed: 03/16/19

C6-C12	829	25.0	mg/kg wet	1000		82.9	75-125			
>C12-C28	1070	25.0	"	1000		107	75-125			
Surrogate: 1-Chlorooctane	119		"	100		119	70-130			
Surrogate: o-Terphenyl	61.4		"	50.0		123	70-130			

LCS Dup (P9C1607-BSD1)

Prepared & Analyzed: 03/16/19

C6-C12	852	25.0	mg/kg wet	1000		85.2	75-125	2.67	20	
>C12-C28	1120	25.0	"	1000		112	75-125	4.61	20	
Surrogate: 1-Chlorooctane	118		"	100		118	70-130			
Surrogate: o-Terphenyl	64.0		"	50.0		128	70-130			

Calibration Blank (P9C1607-CCB1)

Prepared & Analyzed: 03/16/19

C6-C12	11.3		mg/kg wet							
>C12-C28	8.53		"							
Surrogate: 1-Chlorooctane	108		"	100		108	70-130			
Surrogate: o-Terphenyl	60.9		"	50.0		122	70-130			

Calibration Blank (P9C1607-CCB2)

Prepared: 03/16/19 Analyzed: 03/17/19

C6-C12	17.1		mg/kg wet							
>C12-C28	15.0		"							
Surrogate: 1-Chlorooctane	108		"	100		108	70-130			
Surrogate: o-Terphenyl	60.0		"	50.0		120	70-130			

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

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

Batch P9C1607 - TX 1005**Calibration Check (P9C1607-CCV1)**

Prepared & Analyzed: 03/16/19

C6-C12	910	25.0	mg/kg wet	1000		91.0	85-115			
>C12-C28	918	25.0	"	1000		91.8	85-115			
Surrogate: 1-Chlorooctane	116		"	100		116	70-130			
Surrogate: o-Terphenyl	56.4		"	50.0		113	70-130			

Calibration Check (P9C1607-CCV2)

Prepared: 03/16/19 Analyzed: 03/17/19

C6-C12	965	25.0	mg/kg wet	1000		96.5	85-115			
>C12-C28	901	25.0	"	1000		90.1	85-115			
Surrogate: 1-Chlorooctane	119		"	100		119	70-130			
Surrogate: o-Terphenyl	57.4		"	50.0		115	70-130			

Calibration Check (P9C1607-CCV3)

Prepared: 03/16/19 Analyzed: 03/17/19

C6-C12	897	25.0	mg/kg wet	1000		89.7	85-115			
>C12-C28	947	25.0	"	1000		94.7	85-115			
Surrogate: 1-Chlorooctane	116		"	100		116	70-130			
Surrogate: o-Terphenyl	57.8		"	50.0		116	70-130			

Matrix Spike (P9C1607-MS1)

Source: 9C12004-02

Prepared: 03/16/19 Analyzed: 03/17/19

C6-C12	1010	29.4	mg/kg dry	1180	ND	85.4	75-125			
>C12-C28	1280	29.4	"	1180	46.0	105	75-125			
Surrogate: 1-Chlorooctane	106		"	118		90.0	70-130			
Surrogate: o-Terphenyl	57.7		"	58.8		98.1	70-130			

Matrix Spike Dup (P9C1607-MSD1)

Source: 9C12004-02

Prepared: 03/16/19 Analyzed: 03/17/19

C6-C12	1020	29.4	mg/kg dry	1180	ND	86.5	75-125	1.21	20	
>C12-C28	1310	29.4	"	1180	46.0	107	75-125	2.27	20	
Surrogate: 1-Chlorooctane	107		"	118		90.9	70-130			
Surrogate: o-Terphenyl	60.0		"	58.8		102	70-130			

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

R3 The RPD exceeded the acceptance limit due to sample matrix effects.

QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

BULK Samples received in Bulk soil containers

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By: _____



Date: 3/19/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Cimarex
600 N. Marinfeld, Ste. 600
Midland TX, 79701

Project: Hallertau 4 Fed CTB
Project Number: [none]
Project Manager: Christine Alderman

Fax: (432) 571-7832

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: Cimarex Site Manager: Clair Gonzales

Project Name: Hallertau 4 Fed CTB

Project Location: (county, state) Lea Co. NM

Invoice to: Cimarex - Christine Alderman

Receiving Laboratory: Permian Basin Environmental Lab

Sampler Signature: Adrian Garcia

Comments:

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE	None			
-01	CS 1 (0-6")	3/1/2019		X				X			1 N	
-02	CS 2 (0-6")	3/1/2019		X				X			1 N	
-03	CS 3 (0-6")	3/1/2019		X				X			1 N	
-04	CS 4 (0-6")	3/1/2019		X				X			1 N	
-05	CS 5 (0-6")	3/1/2019		X				X			1 N	
-06	CS 6 (0-6")	3/1/2019		X				X			1 N	
-07	CS 7 (0-6")	3/1/2019		X				X			1 N	
-08	NCS (0-6")	3/1/2019		X				X			1 N	
-09	SCS (0-6")	3/1/2019		X				X			1 N	
-10	WCS (0-6")	3/1/2019		X				X			1 N	

Relinquished by: *Delmas* Date: 3/11/19 Time: 4:41 PM

Relinquished by: Date: Time:

Received by: *OSB* Date: 3-11-19 Time: 4:41

Received by: Date: Time:

(Circle or Specify Method No.)

9211022

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

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

Photos

Cimarex Energy
Hallertau 4 Fed 8H TB
Lea County, New Mexico



TETRA TECH



Area of CS 1 and CS 2 – View East



Area of CS 3 – View West

Cimarex Energy
Hallertau 4 Fed 8H TB
Lea County, New Mexico



TETRA TECH



Area of CS 3, CS 4, CS 5, CS 6, and CS 7 – View South



Area of CS 3, CS 4, CS 5, CS 6, and CS 7 – View North

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAB1906556520
District RP	1RP-5385
Facility ID	
Application ID	pAB1906556214

Release Notification

Responsible Party

Responsible Party Cimarex Energy	OGRID 162683
Contact Name Christine Alderman	Contact Telephone 432-853-7059
Contact email calderman@cimarex.com	Incident # (assigned by OCD) NAB1906556520
Contact mailing address 600 N Marienfeld Ste 60, Midland, TX 79701	

Location of Release Source

Latitude 32.0788116 _____ Longitude -103.6730728 _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Hallertau 4 Fed 8H Tank Battery	Site Type production battery
Date Release Discovered 2/25/2019	API# (if applicable) 30-025-40477

Unit Letter	Section	Township	Range	County
A	04	26S	32E	Lea

Surface Owner: State Federal Tribal Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 37	Volume Recovered (bbls) 30
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

A leak developed from a 3" carbon flanged ball valve between the separator and the 8" water line due to corrosion.

Form C-141

State of New Mexico
Oil Conservation Division

Page 2

Incident ID	NAB1906556520
District RP	1RP-5385
Facility ID	
Application ID	pAB1906556214

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? The release was >25 bbls
---	--

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
 Yes
 Christine Alderman
 Jim Griswold, Kristina Hernandez 2/26/2019 email

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
--

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: Christine Alderman Title: ESH Supervisor
 Signature: *Christine Alderman* Date: 2/26/2019
 email: calderman@cimarex.com Telephone: 432-853-7059

OCD Only
 Received by: *Amelia Botamante* Date: 3/6/2019

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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.

State of New Mexico
Oil Conservation Division

Page 4

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: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

Printed Name: _____ Title: _____

Signature: *gloria 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: *[Signature]* Date: _____

Printed Name: _____ Title: _____

Appendix B: Groundwater Data

**Water Well Data
Average Depth to Groundwater (ft)
Cimarex - Hallertau 4 Fed 8H TB**

25 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 390	22	23	24
30	29	28 290	27	26	25
31	32	33	34	35	36

26 South			31 East		
6	5	4	3	2	1 335
7	8 295	9	10	11	12 287
18	17 275	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

26 South			32 East		
6 155	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 333	22	23	24
30	29	28 180	27	26	25
31 295	32	33	34	35	36

25 South			33 East		
6	5	4	3 172	2	1
7	8	9	10	11	12
18	17	16	15	14 140	13 200
19	20	21	22	23	24
30	29 200	28 120	27	26	25
31	32	33	34 125	35	36
257					

26 South			33 East		
6	5	4	3 180	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

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

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

34 NMOCD - Groundwater Data

121 Abandoned Waterwell (recently measured)



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

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

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

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

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 6	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 02271	R	CUB	LE	2	3	21	26S	32E		624449	3544111*	150	125	25
C 02271 POD2		CUB	LE	3	2	3	21	26S	32E	624348	3544010*	270	250	20
C 02274		CUB	LE	2	1	2	31	26S	32E	621742	3541730*	300	295	5
C 02323		C	LE	3	2	3	21	26S	32E	624348	3544010*	405	405	0
C 03537 POD1		CUB	LE	3	2	3	21	26S	32E	624250	3543985	850		
C 03595 POD1		CUB	LE	4	2	3	21	26S	32E	624423	3544045	280	180	100
C 03829 POD1		CUB	LE	3	3	1	06	26S	32E	620628	3549186	646	350	296
C 04209 POD1		CUB	LE	2	3	3	06	26S	32E	620903	3548619	360	155	205
C 04209 POD2		C	LE	2	3	3	06	26S	32E	620818	3548657	340	155	185

Average Depth to Water: **239 feet**
Minimum Depth: **125 feet**
Maximum Depth: **405 feet**

Record Count: 9

Basin/County Search:

County: Lea

PLSS Search:

Township: 26S **Range:** 32E

*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.

3/26/19 8:39 AM

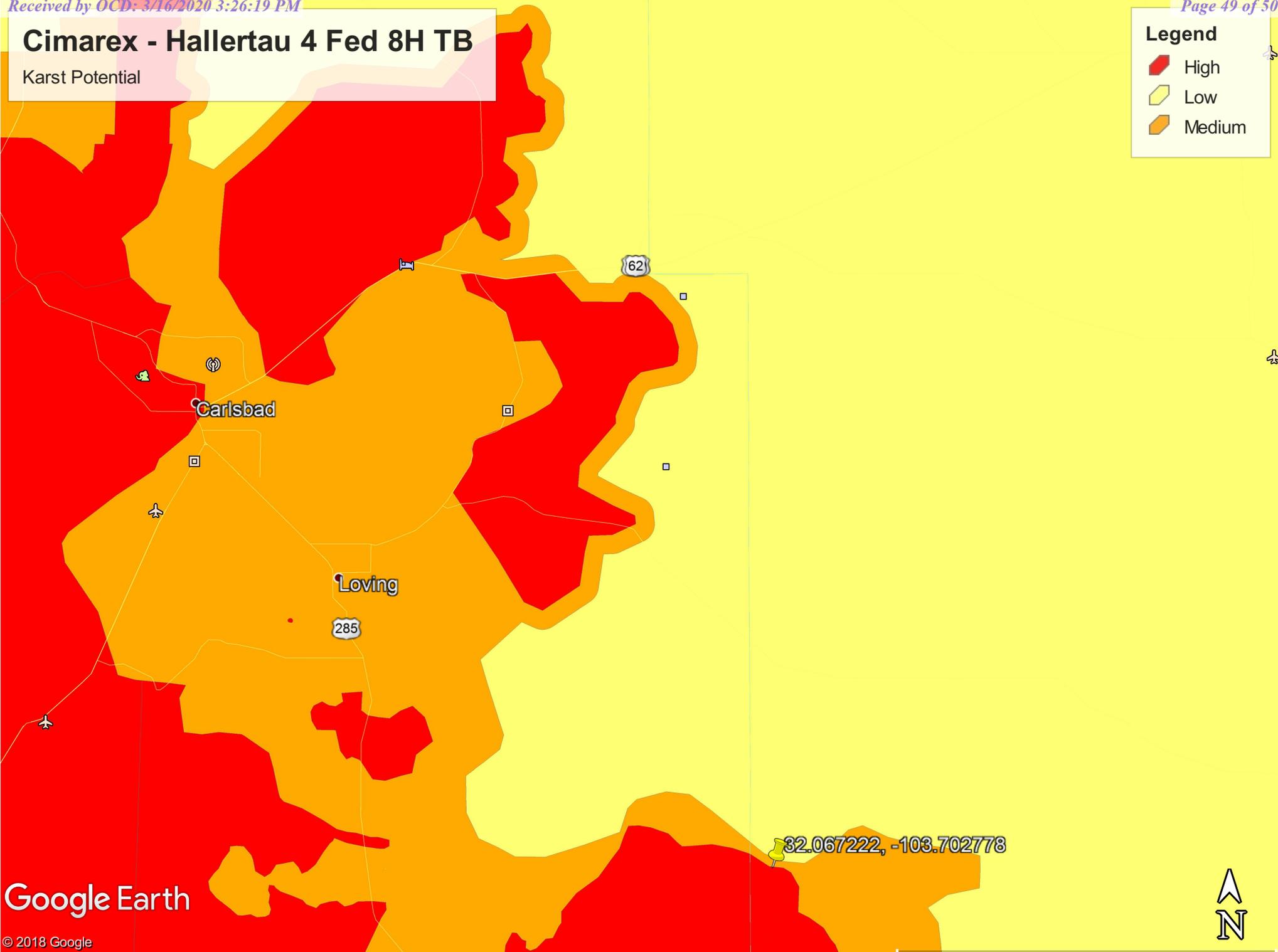
WATER COLUMN/ AVERAGE DEPTH TO WATER

Cimarex - Hallertau 4 Fed 8H TB

Karst Potential

Legend

-  High
-  Low
-  Medium

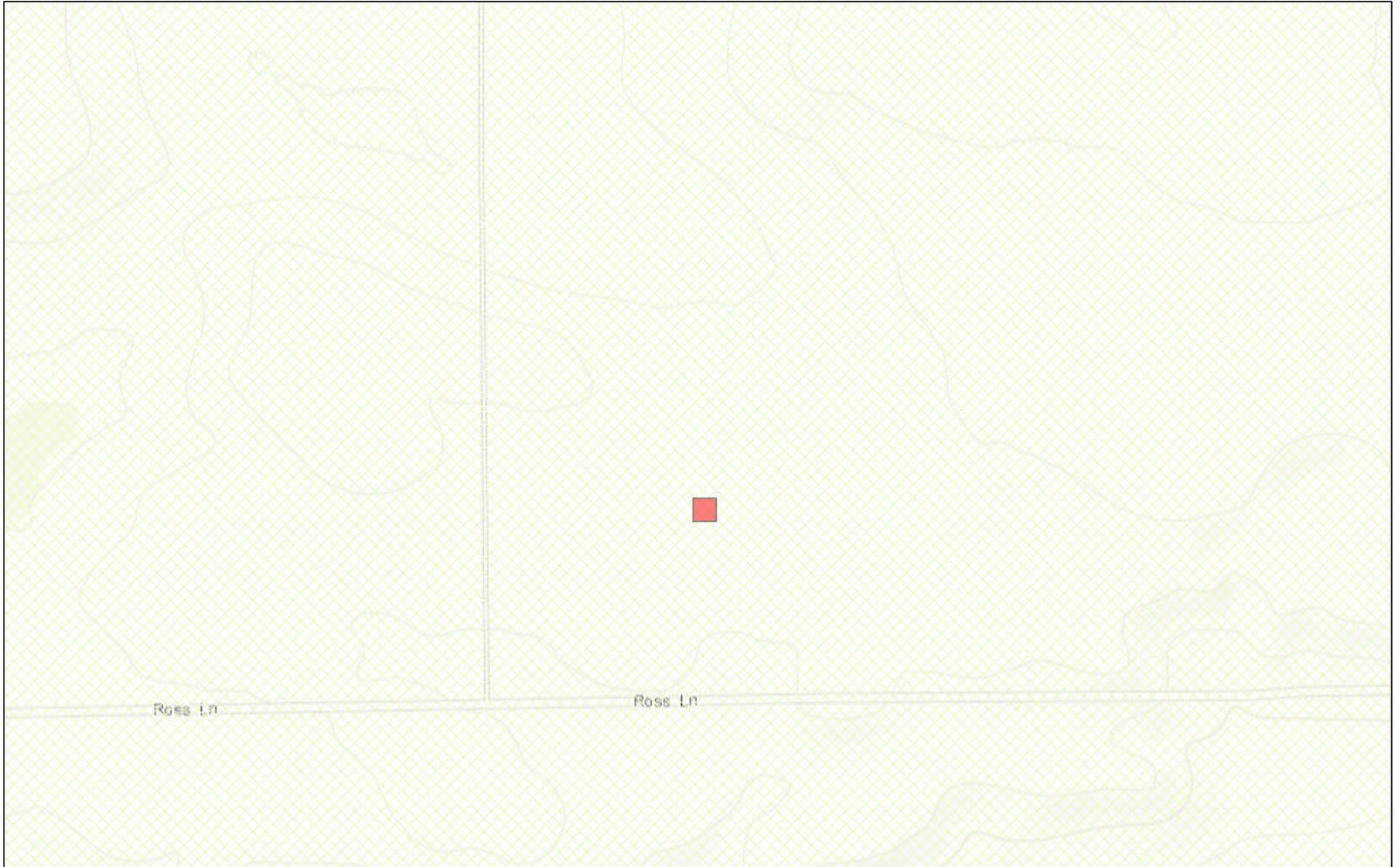


Google Earth

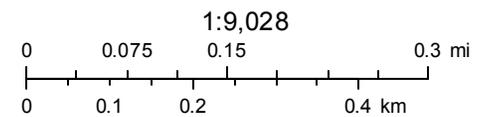


20 mi

New Mexico NFHL Data



March 25, 2019



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